Comhairle Contae Thiobraid Árann
Tipperary County Council

TIPPERARY COUNTY COUNCIL

WALLER'S LOT RECYCLING CENTRE & WASTE TRANSFER STATION
ANNUAL ENVIRONMENTAL REPORT

2017

Waste Licence Register No. W0200-01

Prepared by:

Tipperary County Council
Emmet Street
Clonmel

April 2017

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1. INTRODUCTION

This Annual Environmental Report (AER) is required for submission to the Environmental Protection Agency in accordance with Condition 12.4 of Waste Licence W0200–01 for the Waller's Lot Site. This report presents the all the environmental data and other relevant information regarding the operation of the Waller's Lot Site for 2017

1.1. Scope and Purpose of the Report

Tipperary County Council holds a waste licence (Register No W0200-01) for the operation of the Waller's Lot Site. The aim of this Annual Environmental Report (AER) is to provide a review of activities at the Waller's Lot Site during 2017.

This is the seventh AER to be submitted under Condition 12.4 of the licence. The Content of this AER is as defined in Schedule G of the waste licence.

1.2. Site Location

Waller's Lot is located on the edge of Cashel town.

The location of the site is shown on Figure 1.1.

The National Grid Reference for the site is: 208538969 139873395

1.2.1. Site Contacts

Name:	Mr. Pat Walsh
Job Title:	Site Manager
Telephone No:	(062) 64150
Fax No:	(062) 64157
Name:	Mr. Pat O' Dwyer
Job Title:	Deputy Site Manager:
Telephone No:	(052) 34882
Fax No:	(052) 34391
Name:	Ms. Ann Peters
Job Title:	Executive Engineer
Telephone No:	(052) 34397
Fax No:	(052) 34391

1.3. Environmental Policy

Tipperary County Council is committed to conducting all activities such that they have a minimal effect on the environment.

Tipperary County Councils main objectives are:

1. To comply with the Waste Licence (Licence Reg. W0200-01) and all relevant environmental legislation
2. To ensure that all facility infrastructure, as required in Condition 3 of the Waste Licence, is established
3. To ensure that all site personnel are familiar with:

    a. the Conditions of the Waste Licence
    b. the content of the Environmental Management System
    c. all operational procedures

4. To reduce the potential for negative environmental impacts by a programme of continuous development on-site and appropriate mitigation measures.
5. To carry out all environmental monitoring, as required by Condition 9 of the Waste Licence.
6. To provide adequate training and awareness to all employees with regard to minimising environmental risks.

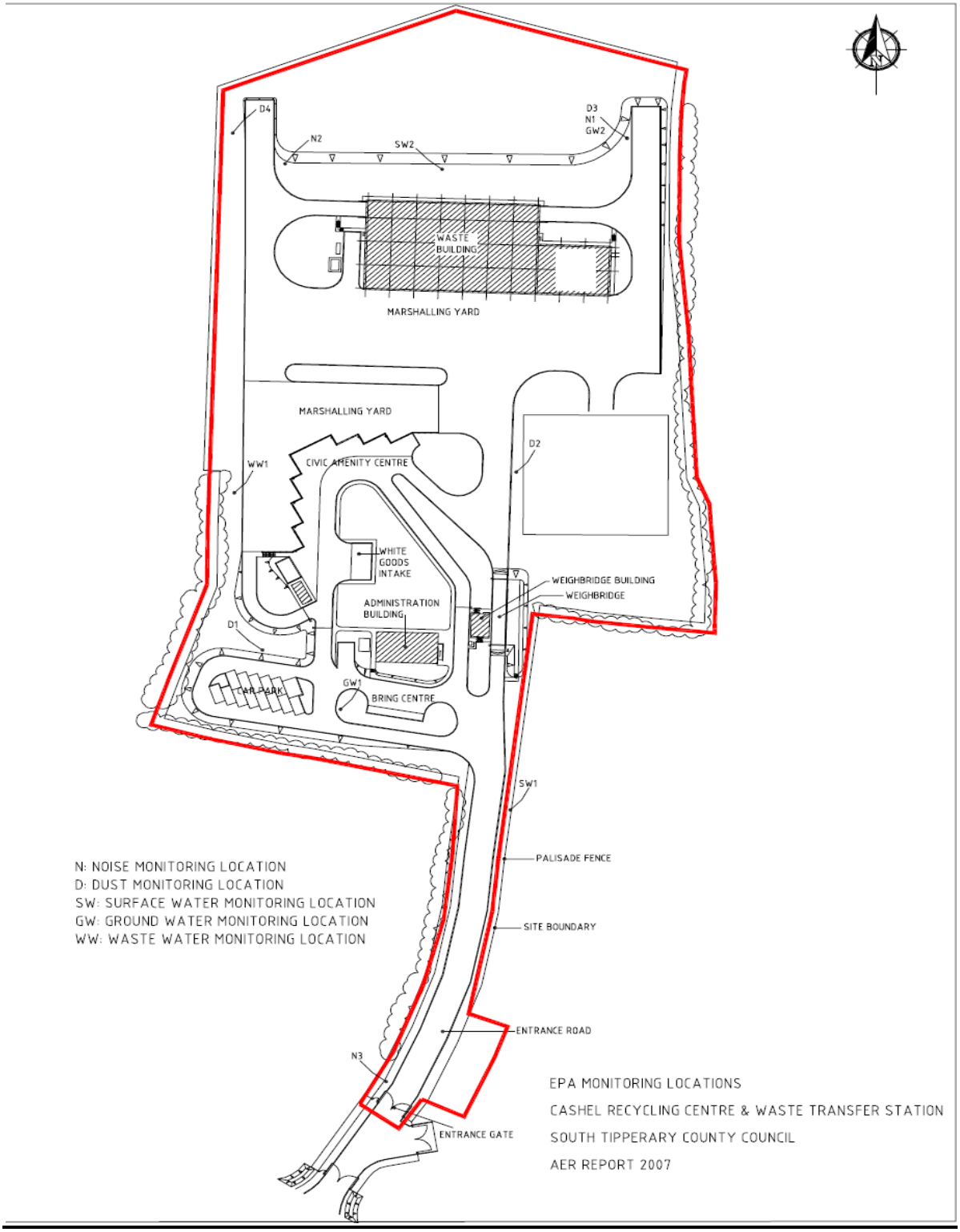


FIGURE 1.1: SITE LOCATION MAP

2 WASTE ACTIVITIES

The licensed waste disposal activities of the facility, in accordance with the Third Schedule of the Waste Management Act 1996 to 2003are:

Class 12. Repackaging prior to submission to any activity referred to in a preceding paragraph 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.

The licensed waste disposal activities of the facility, in accordance with the Third Schedule of the Waste Management Act 1996 to 2003 are:

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 11 Use of waste obtained from any activity referred to in a preceding paragraph pf this Schedule.

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 the waste concerned is produced.

The main activity at the site is as a Civic Amenity Centre and as a Waste Transfer Station.

Schedule A of the waste licence outlines the types and volumes of waste that can be accepted at the site. They are shown in Table 2.1 below.

Table 2.1: Licensed Categories and Quantities of Waste for Disposal

Waste Category	Maximum Quantity (Tonnes per annum)
Household and Commercial Waste	21,000
Household Hazardous Waste	100
Total	**21,100**

2.1 Waste Quantity and Composition

The quantity of waste removed from Waller's Lot in 2017 is outlined in Table 2.2.

Table 2.2: Detailed Quantities of Waste removed from Waller's Lot 2017

Waste Type	EWC Code	Quantity of Waste (Kgs)
Aerosol	16 05 04	120
Batteries	16 06 01*	1,140
Cardboard	15 01 01	34,820
C + D	17 09 04	112,180
Cooking Oil	20 01 25	0
Aluminium Cans	19 08 14	1,020
Dry Recyclables	20 03 01	1,342,120
Fluorescent tubes	20 01 21	660
Glass	20 01 02	39,260
Garden Waste	20 02 01	1,591,100
Hard Plastics	20 01 39	0
Household Hazardous	20 01 27 / 20 01 37 / 06 05 04	3,620
Electric Fence Batteries	20 01 33	360
Lead Acid Batteries	16 06 01	0
Mattresses	20 03 07	28,160
Metal	20 01 40	117,680
Oil Filters	16 01 07	0
Tyres	16 01 03	17,940
Household Waste	20 03 01	4,602,580
Newsprint	20 01 01	47,460
Steel Food Cans	15 01 04	3,060
Timber	20 01 37* / 20 01 38	2,383,440
WEEE	20 01 35*/ 20 01 36	175,200
Waste Water	20 03 04	0
Waste Oil	13 08 99	940
Textiles	20 01 10 / 20 01 11	26,040
Plaster Board\Gypsum	17 08 02	44,580
Plate Glass	17 02 02	18,820
Plastic Bottles	15 01 02	4,100
Gas Cylinders	15 01 11	0
Food Waste	20 01 08	44,220
	Total	**10,640,580**

The monitoring carried out during 2017 is detailed below. All environmental monitoring locations are illustrated in Figure 3.1.

2.2 Dust Monitoring

Condition 9 and Schedule D.2.1 of the licence requires that the licensee conducts the following dust monitoring:

- Three times a year (two of which must occur between May and September) using the Standard Methods VDI2119 at onsite 4 locations.

2.2.1 Dust Monitoring Results

Dust Deposition Monitoring

Dust deposition monitoring was carried out in, July, August\September\October. The results are shown in Table 3.1 below.

Dust Monitoring Point	Emission Limit	Q1 2017	Q1 2017	Q3 2017	Median
D1 (mg/m2/day)	350	20.4	0.0174	0.0502	
D2 (mg/m2/day)	350	8.8	Jar Missing	0.0063	
D3 (mg/m2/day)	350	18.2	0.0154	0.0151	
D4 (mg/m2/day)	350	9.2	0.0092	0.0128	

Dust levels on site were well below limit value of 350 mg/m^2/day at each of the monitoring stations during the monitoring period.

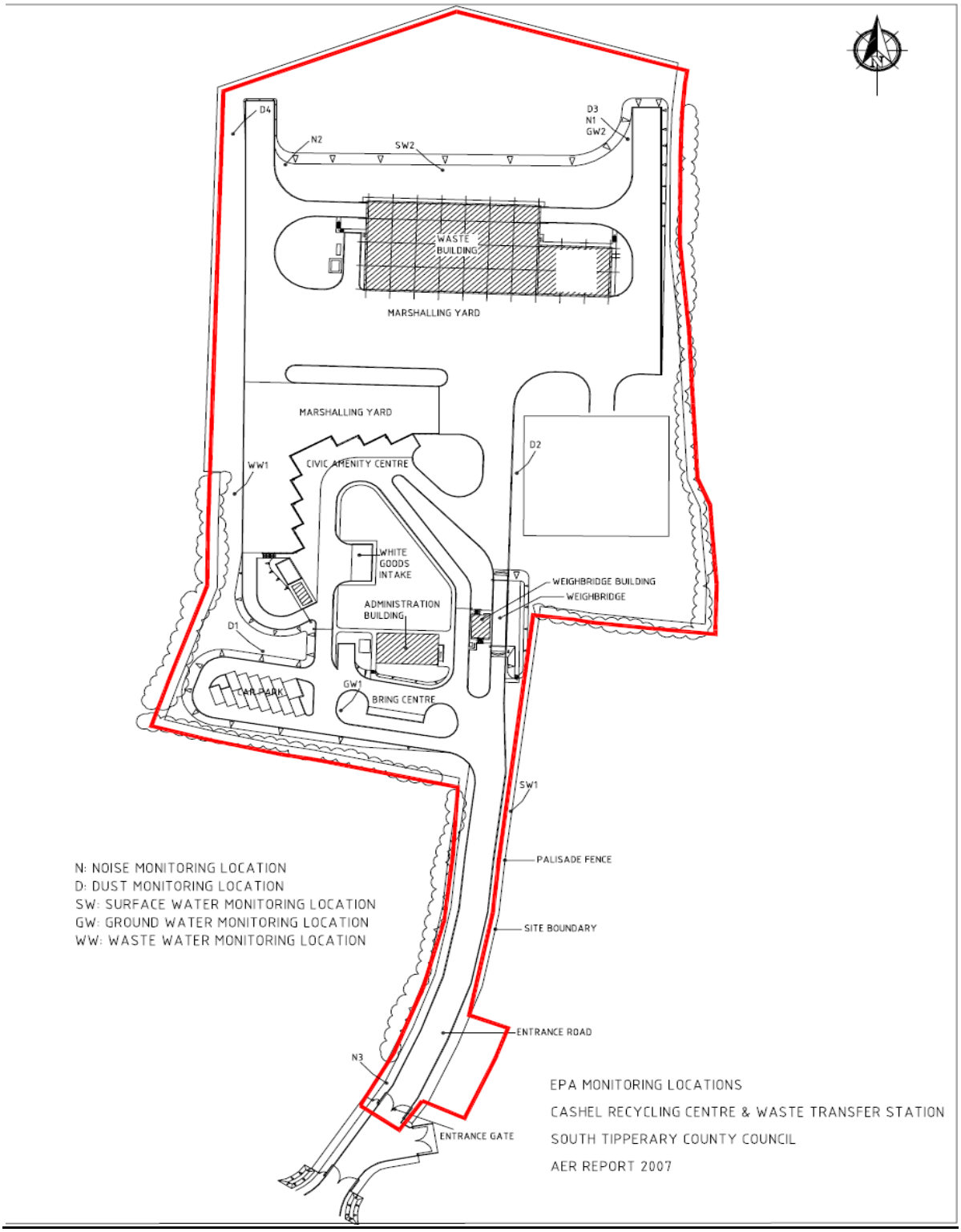


Figure 3.1: Monitoring Locations

2.3 Noise Monitoring

Condition 9 and Schedule D.3.1 of the licence require the licensee to conduct annual monitoring on noise emissions. A full noise survey was carried out on the 13th October 2017. A summary of the results can be seen in Table 3.2 below. A full copy of the results of these tests have been submitted to the Agency.

Table 3.2 Noise Monitoring Results Summary

Monitoring Point	Sampling Interval	Duration 30 (mins)	$L(A)_{EQ}$	Comments
N1	08.45	30	47.4	Traffic noise on site from lorries and loaders (including reverse beepers) as well as off site from the R692 and M8 motorway were the most prevalent noise sources. Other noises noted included birds chirping and a gentle breeze.
N2	09.36	30	44.9	The most common noise sources recorded at this point came from lorries and loaders working on site as well as traffic noise from the M8 and a tractor working off site. Birds could be heard chirping throughout the noise survey.
N3	09.44	30	51.8	Traffic noise was again the predominant noise source noted at this location. Traffic noise was caused by lorries/loaders working on site and off site by traffic on the M8 motorway, the local access road and traffic entering/leaving the site.

3.3 Surface water Monitoring

Condition 9 and Schedule D.4 of the licence require the licensee to conduct surface water monitoring at points prior to discharge to soak away at locations to be agreed with the Agency on a bi annual basis. The results can be seen in Table 3.3 and Table 3.4 below.

Table 3.3 SW1 Surface Water Monitoring Results

Surface Water 1	Emission Limit	Q1 2017	Q4 2017	Median
BOD (mg/l)	10	11.57	16	13.79
pH	6.0 – 9.0	7.9	7.4	7.65
S.Solids (mg/l)	25	67	NT	67
Mineral Oil (ug/l) TPH>C6-C40(TPH)	5	64	180	122

Table 3.4 SW2 Surface Water Monitoring Results

Surface Water 2	Emission Limit	Q1 2017	Q4 2017	Median
BOD (mg/l)	10	19.65	9.0	14.325
pH	6.0 – 9.0	8.0	7.1	7.55
S.Solids (mg/l)	25	766	NT	766
Mineral Oil (ug/l) TPH>C6-C40(TPH)	5	59	120	89.5

3.4 Wastewater Monitoring

Condition 9 and Schedule D.5 of the licence require the licensee to conduct waste water monitoring at a point prior to discharge to sewer at a location to be agreed with the Agency on a bi annual basis. The results can be seen in Table 3.5 below.

Table 3.5 Waste Water Monitoring Results

Wastewater	Emission Limit	Q1 2017	Q4 2017	Median
pH	6.0 - 10.0		7.5	
Temperature (C)	25		18.3	
BOD (mg/l)	500		122	
Suspended Solids (mg/l)	500		70	
Fats, Oils, Grease (mg/l)	100		<4	
Ammoniacial Nitrogen (mg/l)	50		0.22	

3.5 Groundwater Monitoring

Condition 9 and Schedule D.6 of the licence require the licensee to conduct groundwater monitoring at two groundwater wells located onsite on a bi annual basis. The results can be seen in Table 3.6 and Table 3.7 below.

Table 3.6 GW1 Groundwater Monitoring Results

Ground Water 1	Emission Limit	Q1 2017	Q4 2017	Median
Visual Inspection/Odour	No abnormal	No Odour detected	No Odour detected	
Groundwater Level (mts)		14.6	NT	14.6
Conductivity (us/cm)	1500	697	NT*	697
pH	6.0 – 9.0	8.15	7.89	802
Temperature (C)	25	8.1	10.9°C	8.1
Mineral Oil (ug/l) TPH>C6-C40(TPH)	5	0.109	489	244.55

Table 3.7 GW2 Groundwater Monitoring Results

Ground Water 2	Emission Limit	Q1 2017	Q4 2017	Median
Visual Inspection/Odour	No abnormal	No Odour detected	No Odour detected	
Groundwater Level (mts)		14.6	7.99	11.3
Conductivity (us/cm)	1500	501	NT	501
pH	6.0 – 9.0	7.66	7.99	7.83
Temperature (C)	25	11.8	NT	11.8
Mineral Oil (ug/l) TPH>C6-C40(TPH)	5	<0.01	86	86

Resource and Energy Consumption

Electricity and Diesel usage are shown below.

Table 4.0 Electricity Use 2017

Total consumption = 53,850 Kwh

Table 4.1 Diesel Usage 2017(ltrs)

Total Usage 5504 ltrs

Average P\Month 459 ltrs

3 SITE DEVELOPMENT / INFRASTRUCTURAL WORKS

Site development works initiated or completed during the report period are described hereunder.

4.1

The installation a building for WEEE and 2017 and was completed in 2017

SEW submitted to Agency in 2016.

5 ENVIRONMENTAL INCIDENTS AND COMPLAINTS

5.1 Incidents Summary

Condition 12.3 of the waste licence requires that the licensee shall make written records of environmental incidents. No incidents were recorded during this reporting period

5.2. Complaints Summary

There were no complaints received during the reporting period.

5.3 Review of Nuisance Controls.

All nuisance control systems are monitored weekly to ensure that they are working effectively. The findings of these inspections are recorded on Nuisance Check Sheets, which are held on record in the facility. Environmental nuisances include:

1. Litter
2. Vermin
3. Dust

5.3.1 Litter Control

There are regular checks for litter onsite.

5.3.2 Vermin & Insects Control

The initial vermin control system on site is prompt waste disposal and reducing access to material. Additional vermin control work, is contracted to Pest Patrol (Pest control and Environmental Services). They use bait boxes the following systems to control vermin on site.

Pest Patrol carries out eight to ten site inspections annually to ensure that the site is free of vermin. Waller's Lot is not considered to have a vermin problem. The findings of these inspections are recorded and are held on record in the facility.

5.3.3 Dust Control

Dust control on-site is controlled using the following systems:

1. Reduced vehicle speed on site to control dust rising
2. Roads sprayed with water to keep dust down, done in dry weather

No complaints were received at the as regards dust raised by operational activities.

6 ENVIRONMENTAL MANAGEMENT SYSTEM

6.1 SUMMARY OF PROCEDURES ASSOCIATED WITH THE FACILITY

Documented procedures governing the operation of the facility are outlined below. Complete copies of all procedures are included in the facility's EMS.

Doc. No.	Operational Procedure Title	Date of Revision	Revision Number	Date of Review
SCP/4200/04	Emergency Response Procedure	Mar 2017	Rev 4	12-03-17
SCP/4201/04	Corrective Action Procedure	Mar 2017	Rev 4	12-03-17
SCP/4202/02	Awareness and Training Procedure	Mar 2017	Rev 2	12-03-17
SCP/4203/00	Communication Procedure	Mar 2017	Rev 0	12-03-17
SCP/4204/03	Complaints Procedure	Mar 2017	Rev 3	12-03-17
SCP/4205/02	Waste Characterisation and Testing Procedure	Mar 2017	Rev 2	12-03-17
SCP/4206/05	Waste Acceptance & Rejection Procedure	Mar 2017	Rev 5	12-03-17
SCP/4207/03	Vehicle Movement Procedure	Mar 2017	Rev 3	12-03-17
SCP/4208/04	Environmental Monitoring Procedure	Mar 2017	Rev 4	12-03-17
SCP/4209/02	Site Inspection Procedure	Mar 2017	Rev 2	12-03-17
SCP/4210/02	Nuisance Inspection Procedure	Mar 2017	Rev 2	12-03-17
SCP/4211/01	Self Compacting Trailer operating Procedure	Mar 2017	Rev 1	12-03-17
SCP/4212/01	Waste Conveyor Operating Procedure	Mar 2017	Rev 1	12-03-17
SCP/4213/01	Waste Handling Procedure	Mar 2017	Rev 1	12-03-17
SCP/4214/01	Compactor Skip Procedure	Mar 2017	Rev 1	12-03-17
SCP/4215/01	Telescopic Handler Procedure	Mar 2017	Rev 1	12-03-17

6.2 Waller's Lot Civic Amenity Site and Waste Transfer Station

Objective 1	**Continue Advertising campaign**	
Target	I	
	Tasks	**Timeframe**
	1. Advertise facilities in local paper. Ongoing	September 2018
Responsibility	Facility manager & PAO	
Resources\Comments		

Objective 2	**Review all aspects of Health and Safety in relation to the facility**	
Target	To carry out a review in relation to all aspects of health and safety concerning this facility	
	Tasks	**Timeframe**
	1. Review Site specific safety statement	July 2018
	2. Carry out any recommendations for reduction of risk outlined in Safety Statement.	July 2018
	3. Retain OHSAS 18001	May 2018
Responsibility	Facility manager & SEE	
Resources\Comments		

Objective 3	**Improve energy efficiency on site**	
Target	In compliance with Condition 8.1 TCC will carry out an audit of the energy efficiency of the site to identify opportunities for energy use reduction and better resource use.	
	Tasks	**Timeframe**
	1. Carry out energy audit in accordance with guidance published by the Agency – 'Guidance note on energy efficiency auditing'.	May 2018
	2. Implement audit findings and review. Ongoing	September 2018
	3. Assess and install Solar Panels on Waste Transfer Station	August 2018
Responsibility	Facility manager & SEE and TEA	
Resources\Comments	Audit Completed	

Objective 4	**Improve site security**	
Target		
	Tasks	**Timeframe**
	1. Maintain fence 2. Reduce scavengers / trespassers	Ongoing
Responsibility	Facility manager	
Resources\Comments	Worked with local Gardai / New Security cameras fitted	

Objective 5	**Implementation of a management and reporting system**	
Target	In compliance with Condition 2.4 TCC will maintain a system whereby all environmental information is available to members of the public during opening hours	
	Tasks	**Timeframe**
	1. Review and update the EMS	September 2018
	2. Review and update the schedule of objectives and targets 2018	
	3. Implement reviewed EMP	
	4. Review and update the Corrective Action Procedure	September 2018
	5. Review and update the Awareness and Training Programme See Chapter 6	
	6. Prepare an AER	July 2018
Responsibility	Facility Manager	
Resources\Comments	Completed	

Objective 6	**Expand the range of products accepted for recycling**	
Target	Expand the range of products accepted	
	Tasks	**Timeframe**
	1. Investigate other materials	Ongoing
	2. Hard Plastics	Completed
Responsibility	Facility Manager	
Resources\Comments		

Objective 7	**Site Inspections**	
Target	To ensure that all appropriate site inspections are carried out and documented as per the Licence requirements	
	Tasks	**Timeframe**
	1.Training of Staff in Inspection procedures	Ongoing
	2. Maintaining Inspection records	Ongoing
Responsibility	Facility manager	
Resources\Comments	Ongoing	

Objective 8	**Staff Training**	
Target	To ensure that all site personnel are appropriately qualified for the position they hold on site.	
	Tasks	**Timeframe**
	1. Implement regular in-house training for on-site personnel including First Aid and Spill Kit Training	Ongoing
Responsibility	Facility manager	
Resources\Comments	Ongoing	

Objective 9	**Work with outside agencies**	
Target	To ensure that all possible help is given to assist Zero Waste project	
	Tasks	**Timeframe**
	1.Assist in the Zero Waste project in Cashel	Ongoing

Responsibility	Facility manager	
Resources\Comments	Ongoing	

Objective 10	**Environmental Education**	
Target	To encourage all interested parties to visit the site and learn about recycling	
	Tasks	**Timeframe**
	1. Use building to run courses regarding all forms of recycling	Ongoing
	2. Encourage school visits	Ongoing
Responsibility	Facility manager, Environmental Engineer, Public Awareness Officer.	
Resources\Comments	Ongoing	

Objective 11	**Reduction in Resourse usage**	
Target	To reduce usage of water and power on site	
	Tasks	**Timeframe**
	1. Implement recommendations of energy audit	Ongoing
Responsibility	Facility manager	
Resources\Comments	Regular monitoring of site water meter .	

7 FACILITY RECOURCES

7.1 Management and Staff Structure

There are six operational staff at the site: a Facility Manager, responsible for the day-to-day site activities, a deputy manager, environmental chemist, a weighbridge operator and two general operatives.

A staffing structure for site operations is presented in Figure 7.1. Their qualifications and responsibilities are outlined below:

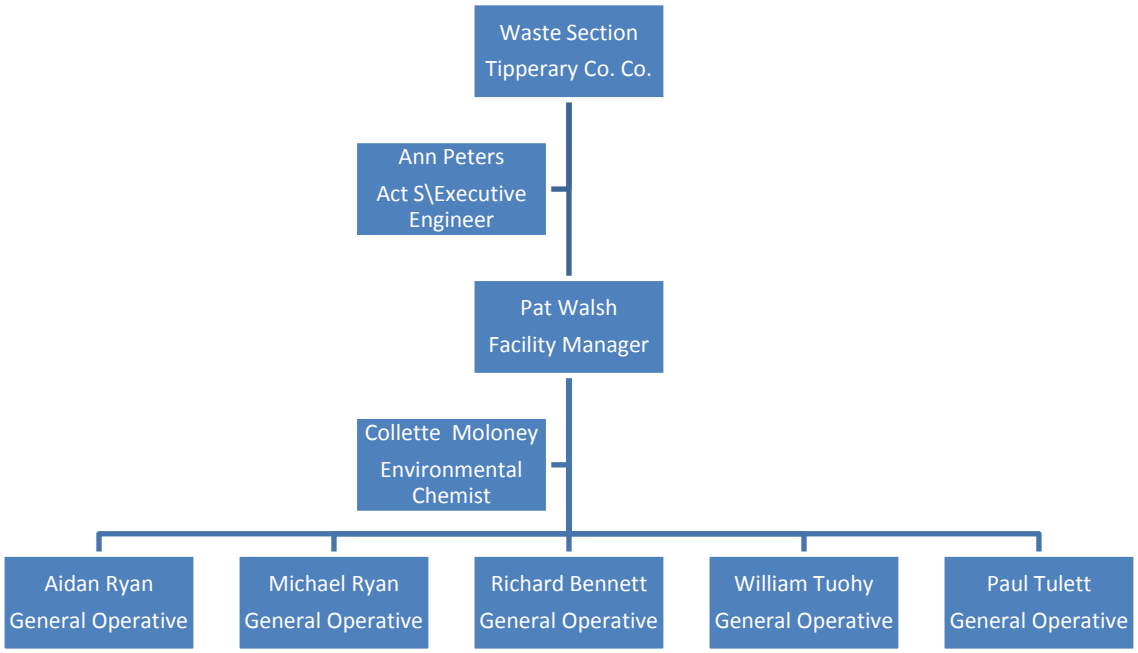


Figure 7.1: Management Structure

Facility Manager:	*Pat Walsh*
Qualifications:	FAS Waste Management Training Course FAS SafePass Course
Responsibilities:	Day-to-Day Operations Waste Acceptance Environmental Protection

Executive Engineer:	*Anne Peters*
Qualifications:	B.E. (Chem.) FAS Waste Management Training Course FAS SafePass Course
Responsibilities:	Oversee infrastructure development and management on site

Deputy Manager:	*Colette Moloney*
Qualifications:	B.Sc. M.Sc
Responsibilities:	Responsible for analytical analysis of monitoring on site

Deputy Manager:	*Pat O' Dwyer*
Qualifications:	FAS Waste Management Training Course FAS SafePass Course
Responsibilities:	Deputy for the Facility Manager, has the same responsibilities • Day-to-day operations • Waste acceptance • Environmental protection

General Operators	Michael Ryan
Qualifications:	FAS Waste Management Training Course In –house Training • Weighbridge operation • Telescopic handler • Safe Pass • Manual handling • Instruction on the implication of the waste licence on site staff
Responsibilities:	Weighing Waste Acceptance Records Cash Duty General house keeping

General Operators	Aidan Ryan,Richard Bennett,William Tuohy and Paul Tullett.
Qualifications:	In –house Training • Weighbridge operation • Telescopic handler • Safe Pass • Manual handling • Instruction on the implication of the waste licence on site staff
Responsibilities:	Weighing Waste Acceptance Records Cash Duty General house keeping

Staff will be present on site during operational hours to supervise the waste disposal, deal with any emergency that arises and to prevent unauthorised entry into the site. The Facility Manager, or appointed deputy, must be on site during opening hours.

The primary goal of all training is to ensure that there is awareness at all levels of:

- the importance of compliance with conditions of the licence
- the potential environmental effects of work activities
- individual roles and responsibilities in achieving compliance with the waste licence
- the environmental benefits of improved performance

- the Health, Safety & Welfare at Work Act.

7.1.1 Training of Personnel

It will be the responsibility of the Manager to ensure that all staff receives training in relevant areas/tasks, including:

- instruction and operation of the machinery
- operation of the weighbridge and computer system
- training for specific functions

The Manager shall also ensure that all staff receives general training, including:

- instruction in manual handling
- the use of fire extinguishers
- FAS Safe Pass Course
- First Aid training

It is also the responsibility of the Manager to ensure that site staff are aware of the terms of the waste licence at the facility and the responsibility of each staff member to maintain specific terms of the waste licence. It is the responsibility of the facility manager to ensure that each staff member is aware of his or her specific function.

The Health and Safety Officer makes regular visits to the site, to promote awareness of safety issues and to audit the site. Any suggested improvements are implemented as soon as possible.

7.1.2 Records for the Training and Awareness Programme

- A training records file is kept at the site office
- All relevant operational procedures and documentation relevant to the licence shall be kept at the facility office and updated regularly
- All staff shall be made aware of the existence of such documents.

7.2 Financial Provisions

The county council have the funds available to them to complete the aftercare and restoration of the site in the event of the site closure.

The aftercare and restoration plan was submitted to the Agency in attachment G.1 of the Waste Licence application.

Air I Noise I Water I Soil I Environmental Consultancy
www.axisenv.ie

Unit 5 Caherdavin Business Centre,
Ennis Road,
Limerick
061 324587
info@axisenv.ie

Tipperary County Council: Waller's Lot
Recycling Centre and Waste Transfer Station, Waller's Lot, Cashel, Co. Tipperary

Environmental Bergerhoff Dust-Fall Report
Round 1 Survey 2017

Licence Number: W0200-01

Report Reference Number:	**3450-17-03**
Version:	**1**
Date of Issue:	**29-08-2017**
Report Compiled by:	**Richard Walsh**

1.0 Executive Summary

Tipperary County Council is required as part of their Waste License W0200-01 Cashel Recycling Centre and Waste Transfer Station; to carry out a dust-fall survey for this installation three times annually.

AXIS environmental services were commissioned to complete the survey after proposal acknowledgment and acceptance by Tipperary County Council.

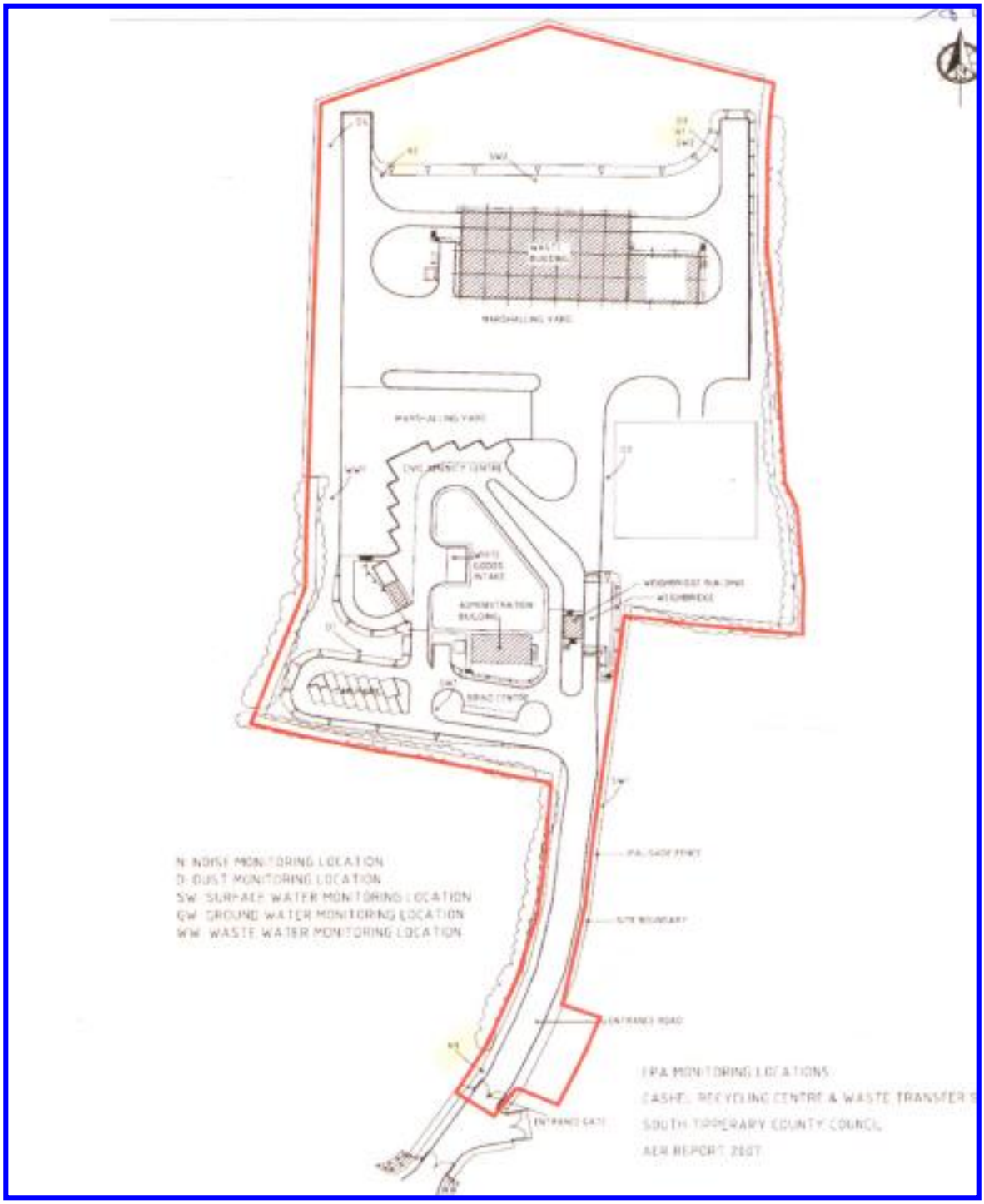
The survey was carried out in strict accordance with the standard VDI 2119 Determination of Dust Precipitation with Collection Pots made of Glass (Bergerhoff Method).

Four points were monitored for the dust survey at Cashel Recycling Centre and Waste Transfer Station. D1, D2, D3 & D4 are facility boundary monitoring points which are located within the confines of the site and are in close proximity to all activities in operation.

Table 1: Summary of Results

Location	Date Out	Date In	Dust Weight (mg)	Dust Fall mg/m^2/day	Limit	Compliant
D1	13/07/17	10/08/2017	20.4	122.62	350	Yes
D2	13/07/17	10/08/2017	8.8	52.90	350	Yes
D3	13/07/17	10/08/2017	18.2	109.40	350	Yes
D4	13/07/17	10/08/2017	9.0	54.10	350	Yes

Appendix II Site Map



Appendix II Test Certificates

Independent Analytical Supplies

Test Report

Lab Report Number:	**5381J01**	**Analysis Number:**	**99A/106359**

Customer ID:	AXIS.E1	**Analysis Type:**	Misc. Tests (99A)
Contact Name:	DAN MULLINS	**Delivery By:**	Customer
Company Name:	AXIS ENVIRONMENTAL SERVICES	**Sample Card Number:**	100617N/4
Address:	UNIT 5 CAHERDAVIN BUS. PK ENNIS ROAD LIMERICK V94 NT63	**Sample Condition:**	Acceptable
Sample Type:	Dust	**Date Sample Received:**	10/08/2017
Sample Reference:	WALLERS100617	**Date Analysis Commenced:**	10/08/2017
Sample Description:	D1	**Date Certificate Issued:**	14/08/2017

Parameter	Method	Result	Unit
Dry Weight	Weighing	0.0204	g

Signed: WD McCall Date: 14/08/2017

Wendy McCall - Laboratory Manager

^ = Subcontracted

IAS LABORATORIES, Unit 4 Bagenalstown Bus. Park, Bagenalstown, Co. Carlow,
4070 Issue 3 **Phone: 00353 59 9721022 Fax: 00353 59 9721897 Email: ias@iaslabs.ie Web: www.iaslabs.ie**

Independent Analytical Supplies

Test Report

Lab Report Number:	**5381J02**	**Analysis Number:**	**99A/105360**

Customer ID:	AXIS.E1	**Analysis Type:**	Misc. Tests (99A)
Contact Name:	DAN MULLINS	**Delivery By:**	Customer
Company Name:	AXIS ENVIRONMENTAL SERVICES	**Sample Card Number:**	100817N/4
Address:	UNIT 5 CAHERDAVIN BUS. PK ENNIS ROAD LIMERICK V94 NT63	**Sample Condition:**	Acceptable
Sample Type:	Dust	**Date Sample Received:**	10/08/2017
Sample Reference:	WALLERS100817	**Date Analysis Commenced:**	10/08/2017
Sample Description:	D2	**Date Certificate Issued:**	14/08/2017

Parameter	Method	Result	Unit
Dry Weight	Weighing	0.0088	g

Signed: WD McCall Date: 14/08/2017

Wendy McCall - Laboratory Manager

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IAS LABORATORIES, Unit 4 Bagenalstown Bus. Park, Bagenalstown, Co. Carlow,
Phone: 00353 59 9721022 Fax: 00353 59 9721897 Email: ias@iaslabs.ie Web: www.iaslabs.ie

Independent Analytical Supplies

Test Report

Lab Report Number:	**5381J03**	**Analysis Number:**	**98A/106361**

Customer ID:	AXIS.E1	**Analysis Type:**	Misc. Tests (98A)
Contact Name:	DAN MULLINS	**Delivery By:**	Customer
Company Name:	AXIS ENVIRONMENTAL SERVICES	**Sample Card Number:**	100817NI4
Address:	UNIT 6 CAHERDAVIN BUS. PK ENNIS ROAD LIMERICK V94 NT63	**Sample Condition:**	Acceptable
Sample Type:	Dust	**Date Sample Received:**	10/08/2017
Sample Reference:	WALLERS100817	**Date Analysis Commenced:**	10/08/2017
Sample Description:	D3	**Date Certificate Issued:**	14/08/2017

Parameter	Method	Result	Unit
Dry Weight	Weighing	0.0182	g

Signed: WD McCall Date: 14/08/2017

Wendy McCall - Laboratory Manager

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IAS LABORATORIES, Unit 4 Bagenalstown Bus. Park, Bagenalstown, Co. Carlow,
Phone: 00353 59 9721022 Fax: 00353 59 9721897 Email: ias@iaslabs.ie Web: www.iaslabs.ie

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Independent Analytical Supplies

Test Report

Lab Report Number:	**5381J04**	**Analysis Number:**	**99A/106362**

Customer ID:	AXIS.E1	**Analysis Type:**	Misc. Tests (99A)
Contact Name:	DAN MULLINS	**Delivery By:**	Customer
Company Name:	AXIS ENVIRONMENTAL SERVICES	**Sample Card Number:**	100817N/4
Address:	UNIT 5 CAHERDAVIN BUS. PK ENNIS ROAD LIMERICK V94 NT63	**Sample Condition:**	Acceptable
Sample Type:	Dust	**Date Sample Received:**	15/08/2017
Sample Reference:	WALLERS100817	**Date Analysis Commenced:**	15/08/2017
Sample Description:	D4	**Date Certificate Issued:**	14/08/2017

Parameter	Method	Result	Unit
Dry Weight	Weighing	0.0060	g

Signed: WD McCall Date: 14/08/2017

Wendy McCall - Laboratory Manager

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IAS LABORATORIES, Unit 4 Ragenalstown Bus. Park. Baconalstown, Co. Carlow,
Phone: 00353 59 9721822 Fax: 00353 59 9721897 Email: ias@iaslabs.ie Web: www.iaslabs.ie

Air I Noise I Water I Soil I Environmental Consultancy
www.axisenv.ie

Unit 5 Caherdavin Business Centre,
Ennis Road,
Limerick
061 324587
info@axisenv.ie

Tipperary County Council: Waller's Lot

Recycling Centre and Waste Transfer Station, Waller's Lot, Cashel, Co. Tipperary

Environmental Bergerhoff Dust Report
Round 2 Survey 2017

Licence Number: W0200-01

Report Reference Number:	**3450-17-06**
Version:	**1**
Date of Issue:	**25-09-2017**
Report Compiled by:	**Rita O'Grady**

1.0 Executive Summary

Tipperary County Council is required as part of their Waste License W0200-01 Cashel Recycling Centre and Waste Transfer Station; to carry out a Dust-fall survey for this installation three times annually.

AXIS environmental services were commissioned to complete the survey after proposal acknowledgment and acceptance by Tipperary County Council.

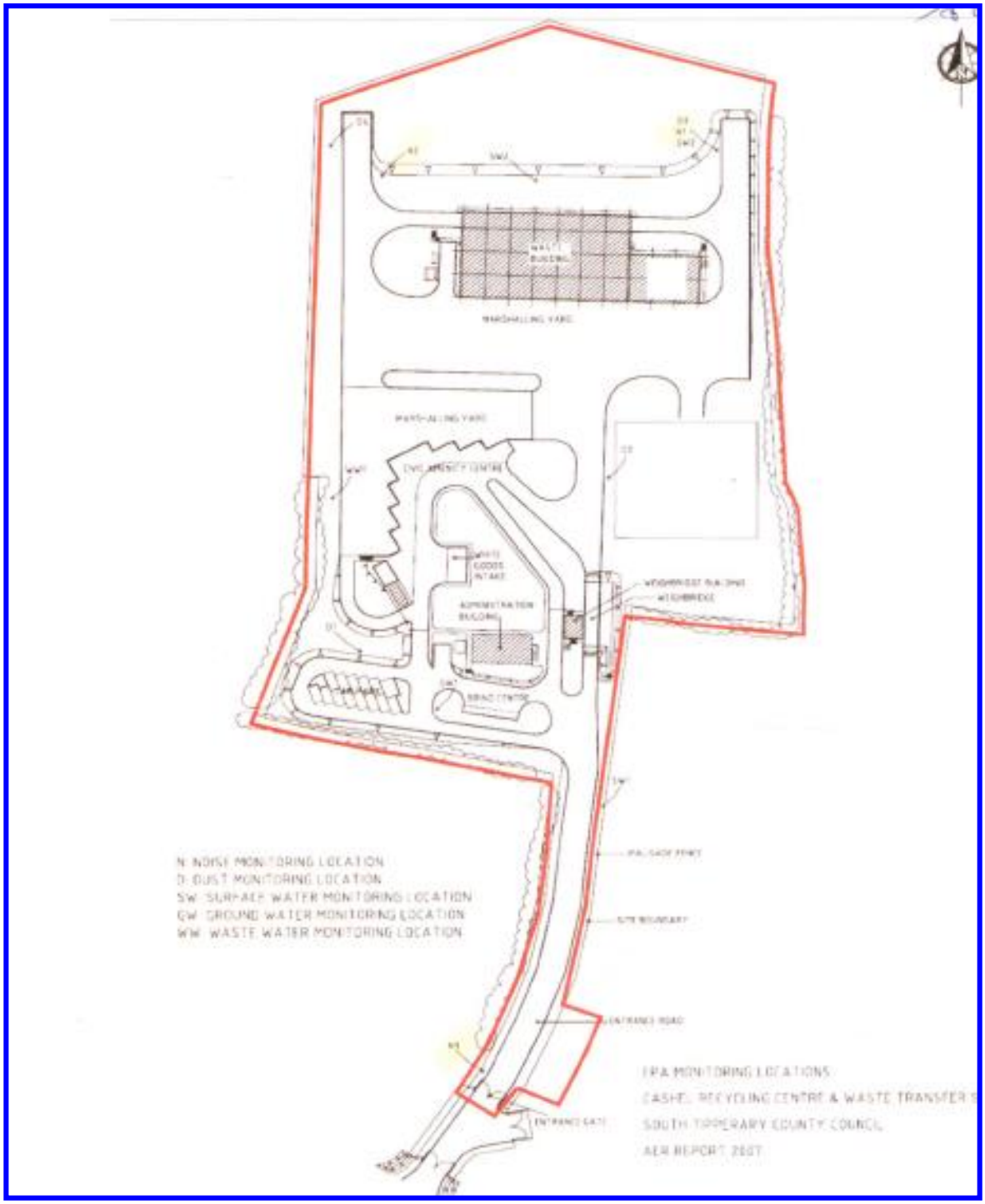
The survey was carried out in strict accordance with the standard VDI 2119 Determination of Dust Precipitation with Collection Pots made of Glass (Bergerhoff Method).

Four points were monitored for the dust survey at Cashel Recycling Centre and Waste Transfer Station. D1, D2, D3 & D4 are facility boundary monitoring points which are located within the confines of the site and are in close proximity to all activities in operation.

Table 1: Summary of Results

Location	Date Out	Date In	No. of Days	Dust Weight (g)	Dust Fall mg/m^2/day	Limit	Compliant
D1	10/08/2017	11/09/17	32	0.0174	277.07	350	Yes
D2	10/08/2017	Dust jar was missing, presumed stolen, from site				350	N/A
D3	10/08/2017	11/09/17	32	0.0154	245.22	350	Yes
D4	10/08/2017	11/09/17	32	0.0092	146.50	350	Yes

Appendix II Site Map



Appendix II Test Certificates

IAS LABORATORIES

Independent Analytical Supplies

Test Report

Lab Report Number:	**6077J01**	**Analysis Number:**	**99A/107253**

Customer ID:	AXIS.E1	**Analysis Type:**	Misc. Tests (99A)
Contact Name:	DANIEL MULLINS	**Delivery By:**	Courier
Company Name:	AXIS ENVIRONMENTAL SERVICES	**Sample Card Number:**	130917E/3
Address:	UNIT 5 CAHERDAVIN BUS. PK ENNIS ROAD LIMERICK V94 NT63	**Sample Condition:**	Acceptable
Sample Type:	Dust	**Date Sample Received:**	13/09/2017
Sample Reference:	WALLERS11092017	**Date Analysis Commenced:**	13/09/2017
Sample Description:	D1	**Date Certificate Issued:**	22/09/2017

Parameter	Method	Result	Unit
Dry Weight	Weighing	0.0174	g

Signed: WD McCall Date: 22/09/2017

Wendy McCall - Laboratory Manager

^ = Subcontracted

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Independent Analytical Supplies

Test Report

Lab Report Number:	**5381J02**	**Analysis Number:**	**99A/106360**

Customer ID:	AXIS.E1	**Analysis Type:**	Misc. Tests (99A)
Contact Name:	DAN MULLINS	**Delivery By:**	Customer
Company Name:	AXIS ENVIRONMENTAL SERVICES	**Sample Card Number:**	100817N/4
Address:	UNIT 5 CAHERDAVIN BUS. PK ENNIS ROAD LIMERICK V94 NT63	**Sample Condition:**	Acceptable
Sample Type:	Dust	**Date Sample Received:**	10/08/2017
Sample Reference:	WALLERS100817	**Date Analysis Commenced:**	10/08/2017
Sample Description:	D2	**Date Certificate Issued:**	14/08/2017

Parameter	Method	Result	Unit
Dry Weight	Weighing	0.0088	g

Signed: WD McCall Date: 14/08/2017

Wendy McCall - Laboratory Manager

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IAS LABORATORIES, Unit 4 Bagenalstown Bus. Park, Bagenalstown, Co. Carlow,
Phone: 00353 59 9721022 Fax: 00353 59 9721897 Email: ias@iaslabs.ie Web: www.iaslabs.ie

Independent Analytical Supplies

Test Report

Lab Report Number:	**5381J03**	**Analysis Number:**	**99A/106361**

Customer ID:	AXIS.E1	**Analysis Type:**	Misc. Tests (99A)
Contact Name:	DAN MULLINS	**Delivery By:**	Customer
Company Name:	AXIS ENVIRONMENTAL SERVICES	**Sample Card Number:**	100817N4
Address:	UNIT 5 CAHERDAVIN BUS. PK ENNIS ROAD LIMERICK V94 NT63	**Sample Condition:**	Acceptable
Sample Type:	Dust	**Date Sample Received:**	10/08/2017
Sample Reference:	WALLERS100817	**Date Analysis Commenced:**	10/08/2017
Sample Description:	D3	**Date Certificate Issued:**	14/08/2017

Parameter	Method	Result	Unit
Dry Weight	Weighing	0.0182	g

Signed: WD McCall Date: 14/08/2017

Wendy McCall - Laboratory Manager

^ = Subcontracted

IAS LABORATORIES, Unit 4 Bagenalstown Bus. Park, Bagenalstown, Co. Carlow,

4070 Issue 3 **Phone: 00353 59 9721022 Fax: 00353 59 9721897 Email: ias@iaslabs.ie Web: www.iaslabs.ie**

IAS LABORATORIES

Independent Analytical Supplies

Test Report

Lab Report Number:	**5381J04**	**Analysis Number:**	**99A/106362**

Customer ID:	AXIS E1	**Analysis Type:**	Misc. Tests (99A)
Contact Name:	DAN MULLINS	**Delivery By:**	Customer
Company Name:	AXIS ENVIRONMENTAL SERVICES	**Sample Card Number:**	100617N/4
Address:	UNIT 5 CAHERDAVIN BUS. PK ENNIS ROAD LIMERICK V94 NT63	**Sample Condition:**	Acceptable
Sample Type:	Dust	**Date Sample Received:**	10/08/2017
Sample Reference:	WALLERS100817	**Date Analysis Commenced:**	10/08/2017
Sample Description:	D4	**Date Certificate Issued:**	14/08/2017

Parameter	Method	Result	Unit
Dry Weight	Weighing	0.0060	g

Signed: WD McCall

Wendy McCall - Laboratory Manager

Date: 14/08/2017

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IAS LABORATORIES, Unit 4 Ragenalstown Bus. Park. Ragenalstown, Co. Carlow,

Phone: 00353 59 9721822 Fax: 00353 59 9721897 Email: ias@iaslabs.ie Web: www.iaslabs.ie

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www.axisenv.ie

Unit 5 Caherdavin Business Centre,
Ennis Road,
Limerick
061 324587
info@axisenv.ie

Tipperary County Council: Waller's Lot

Recycling Centre and Waste Transfer Station, Waller's Lot, Cashel, Co. Tipperary

Environmental Bergerhoff Dust Report
Round 3 Survey 2017

Licence Number: W0200-01

Report Reference Number:	**3450-17-09**
Version:	**1**
Date of Issue:	**18-10-2017**
Report Compiled by:	**Daniel Mullins**

1.0 Executive Summary

Tipperary County Council is required as part of their Waste License W0200-01 Cashel Recycling Centre and Waste Transfer Station; to carry out a Dust-fall survey for this installation three times annually.

AXIS environmental services were commissioned to complete the survey after proposal acknowledgment and acceptance by Tipperary County Council.

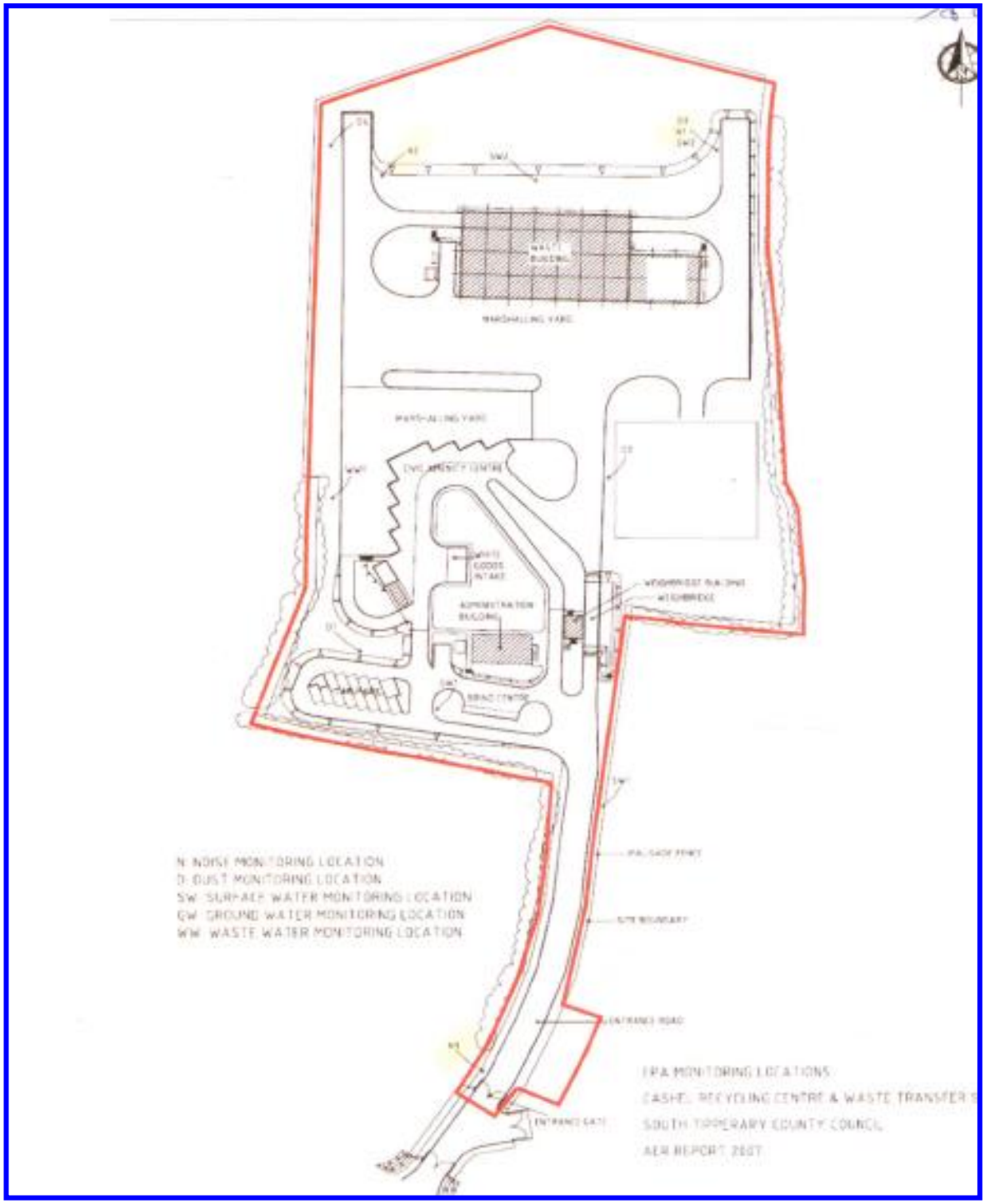
The survey was carried out in strict accordance with the standard VDI 2119 Determination of Dust Precipitation with Collection Pots made of Glass (Bergerhoff Method).

Four points were monitored for the dust survey at Cashel Recycling Centre and Waste Transfer Station. D1, D2, D3 & D4 are facility boundary monitoring points which are located within the confines of the site and are in close proximity to all activities in operation. D1 failed due to bird faeces which contaminated the sample.

Table 1: Summary of Results

Location	Date Out	Date In	No. of Days	Dust Weight (g)	Dust Fall mg/m^2/day	Limit	Compliant
D1	11/09/17	09/10/17	28	0.0502	301.7	350	Yes
D2	11/09/17	09/10/17	28	0.0063	37.9	350	Yes
D3	11/09/17	09/10/17	28	0.0151	90.8	350	Yes
D4	11/09/17	09/10/17	28	0.0128	76.9	350	Yes

Appendix II Site Map



Appendix II Test Certificates

Independent Analytical Supplies

Test Report

Lab Report Number:	**6816J01**	**Analysis Number:**	**99A/107817**

Customer ID:	AXIS.E1	**Analysis Type:**	Misc. Tests (99A)
Contact Name:	DAN MULLINS	**Delivery By:**	Courier
Company Name:	AXIS ENVIRONMENTAL SERVICES	**Sample Card Number:**	101017D/7
Address:	UNIT 5 CAHERDAVIN BUS. PK ENNIS ROAD LIMERICK V94 NT63	**Sample Condition:**	Acceptable
Sample Type:	Dust	**Date Sample Received:**	10/10/2017
Sample Reference:	WALLERS & DONOHILL 09-10-17	**Date Analysis Commenced:**	10/10/2017
Sample Description:	D1	**Date Certificate Issued:**	13/10/2017

Parameter	Method	Result	Unit
Dry Weight	Weighing	0.0602	g

Signed: WD McCall

Wendy McCall - Laboratory Manager

Date: 13/10/2017

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IAS LABORATORIES, Unit 4 Bagenalstown Bus. Park. Bagenalstown, Co. Carlow,
Phone: 00353 59 9721022 Fax: 00353 59 9721897 Email: ias@iaslabs.ie Web: www.iaslabs.ie

Independent Analytical Supplies

Test Report

Lab Report Number:	**6816J02**	**Analysis Number:**	**99A/107818**

Customer ID:	AXIS.E1	**Analysis Type:**	Misc. Tests (99A)
Contact Name:	DAN MULLINS	**Delivery By:**	Courier
Company Name:	AXIS ENVIRONMENTAL SERVICES	**Sample Card Number:**	101017D/7
Address:	UNIT 5 CAHERDAVIN BUS. PK ENNIS ROAD LIMERICK V94 NT63	**Sample Condition:**	Acceptable
Sample Type:	Dust	**Date Sample Received:**	10/10/2017
Sample Reference:	WALLERS & DONOHILL 09-10-17	**Date Analysis Commenced:**	10/10/2017
Sample Description:	D2	**Date Certificate Issued:**	13/10/2017

Parameter	Method	Result	Unit
Dry Weight	Weighing	0.0063	g

Signed: WD McCall Date: 13/10/2017

Wendy McCall - Laboratory Manager

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IAS LABORATORIES. Unit 4 Bagenalstown Bus. Park, Bagenalstown, Co. Carlow,
Phone: 00353 59 9721022 Fax: 00353 59 9721897 Email: ias@iaslabs.ie Web: www.iaslabs.ie

IAS LABORATORIES

Independent Analytical Supplies

Test Report

Lab Report Number:	**6816J03**	**Analysis Number:**	**99A/107819**

Customer ID:	AXIS E1	**Analysis Type:**	Misc. Tests (99A)
Contact Name:	DAN MULLINS	**Delivery By:**	Courier
Company Name:	AXIS ENVIRONMENTAL SERVICES	**Sample Card Number:**	101017D/7
Address:	UNIT 5 CAHERDAVIN BUS. PK ENNIS ROAD LIMERICK V94 NT83	**Sample Condition:**	Acceptable
Sample Type:	Dust	**Date Sample Received:**	10/10/2017
Sample Reference:	WALLERS & DONOHILL 09-10-17	**Date Analysis Commenced:**	10/10/2017
Sample Description:	D3	**Date Certificate Issued:**	13/10/2017

Parameter	Method	Result	Unit
Dry Weight	Weighing	0.2151	g

Signed: WD McCall

Wendy McCall - Laboratory Manager

Date: 13/10/2017

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IAS LABORATORIES, Unit 4 Ragenalstown Bus. Park, Ragenalstown, Co. Carlow,

Phone: 00353 59 9721022 Fax: 00353 59 9721897 Email: ias@iaslabs.ie Web: www.iaslabs.ie

IAS LABORATORIES

Independent Analytical Supplies

Test Report

Lab Report Number:	**6816J04**	**Analysis Number:**	**99A/107820**

Customer ID:	AXIS.E1	**Analysis Type:**	Misc. Tests (99A)
Contact Name:	DAN MULLINS	**Delivery By:**	Courier
Company Name:	AXIS ENVIRONMENTAL SERVICES	**Sample Card Number:**	1010170/7
Address:	UNIT 5 CAHERDAVIN BUS. PK ENNIS ROAD LIMERICK V94 NT83	**Sample Condition:**	Acceptable
Sample Type:	Dust	**Date Sample Received:**	10/10/2017
Sample Reference:	WALLERS & DONOHILL 09-10-17	**Date Analysis Commenced:**	10/10/2017
Sample Description:	D4	**Date Certificate Issued:**	13/10/2017

Parameter	Method	Result	Unit
Dry Weight	Weighing	0.0126	g

Signed: WD McCall Date: 13/10/2017

Wendy McCall - Laboratory Manager

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IAS LABORATORIES, Unit 1 Bagenalstown Bus. Park, Bagenalstown, Co. Carlow,

Phone: 00353 59 9721032 Fax: 00353 59 9721697 Email: ias@iaslabs.ie Web: www.iaslabs.ie

Air I Noise I Water I Soil I Environmental Consultancy
ww.axisenv.ie

Unit 5 Caherdavin Business Centre,
Ennis Road,
Limerick
info@axisenv.ie
061 324587

Tipperary County Council

Recycling Centre and Waste Transfer Station,
Waller's Lot
Cashel
Co. Tipperary

Environmental Noise Report
Noise Survey 2017

Licence Number: W0200-01

Report Reference Number:	**3450-17-01**
Version:	**1**
Date of Issue:	**25/08/2017**
Report Compiled by:	**Richard Walsh**

Report Content

1.0	**Executive Summary**	.....	**3**
2.0	**Introduction**	.....	**4**
3.0	**Methods Employed**	.....	**5**
4.0	**Monitoring Locations**	.....	**6**
5.0	**Noise Measurement Data**	.....	**7**
6.0	**Conclusions**	.....	**10**

Report Date	23/08/2017	**Site Contact:**	Louise M. Ryan
Report Issued By	Mark Mc Garry	**Version No:**	1
Signed:		**Client:**	Tipperary Co. Co.
Notes:			

1.0 Executive Summary

Tipperary County Council is required as part of licence W0200-01; Conditions C.1 and D.3 to carry out a noise survey of the installation on an annual basis. AXIS environmental services were commissioned to complete the survey after proposal acknowledgment and acceptance by Tipperary County Council's Environmental Department.

The purpose of the survey was to monitor noise at predetermined locations and assess the sites compliance against Schedule C.1 limits.

The survey was carried out in strict accordance with the standard ISO 1996 Parts 1 – 3, Acoustics – description, measurement and assessment of environmental noise. Reference was also made to the EPA guidelines NG4 *"Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities"* January 2016.

All operations at Waller's lot were running as normal throughout the survey. The majority of noise recorded during the survey could be attributed to traffic movement on site from the operation of trucks, loaders and off site due to traffic on the M8 motorway and local R692 secondary road. There were other sources of noise at each individual location which are summarised in the report.

The impact of road traffic noise could be a significant interference on the survey at certain locations as defined in the report. As outlined in the Standard ISO 1996 and the associated noise guidance document issued by the Agency in 2016, where traffic noise is interfering with noise measurements, it is acceptable to assess noise compliance against the L_{A90} for the monitoring period. This is a statistical measurement of the noise level exceeded for 90% of the time which would largely be associated with the facility under assessment.

Three monitoring points were monitored for the noise survey. N1, N2 and N3 are boundary monitoring points which are located within the confines of the site and are in close proximity to all activities in operation. These are not by definition noise sensitive locations.

All monitoring points were determined to comply in full with licence requirements. There was no tonal or impulsive noise observed at either location for the duration of the assessment.

2.0 Introduction

As part of compliance monitoring at Waller's Lot, an annual noise survey is to be carried out at noise sensitive receptors in the vicinity of the plant. The Agency and Tipperary County Council have agreed on the monitoring points on the boundary of the site and at the nearest noise sensitive locations.

The IPPC licence W0200-01 outlines the requirements under Conditions C.1and D.3 which have been documented as follows:

2.1 Condition C.1: Noise Emissions

Day dB(A) L_{Aeq}(30minutes)	Night dB(A) L_{Aeq}(30 minutes)
55	45

2.2 Schedule D.3: Nose Monitoring Parameters and Frequency

Table 1: Schedule: Noise Monitoring

Location	***Measurement***	***Frequency***
N1	30minute Daytime survey to include 1/3rd octave measurements	Annually
N2	30minute Daytime survey to include 1/3rd octave measurements	Annually
N3	30minute Daytime survey to include 1/3rd octave measurements	Annually

3.0 Methods

Monitoring was carried out in strict accordance with ISO 1996 Parts 1 – 3, Description and Measurement of Environmental Noise. Reference was also made to the EPA guidelines NG4 *"Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities"* January 2016.

Table 3: Equipment Details

	Meter No 2	Meter No 3
Manufacturer	Cirrus Optimus Green	Cirrus Optimus Green
Model	CR:171B	CR:172B
Serial Number	G061082	G061817
Firmware	V2.3.1156	V2.4.1529
Calibrator	CR:511E Acoustic Calibrator	CR:515 Acoustic Calibrator
Microphone	B&K4192 - 1920791	B&K4180 - 1893453
Windshield Type	UA:237 90mm Foam Windshield	UA:237 90mm Foam Windshield
Calibration Date		
Noise Meter	09th March 2017 – 2018	04th November 2016 - 2017
Certificate Number	246921	242959
Calibrator	March 2017 – 2018	November 2016 - 2017
Certificate Number	246920	108637

4.0 Monitoring Locations

4.1 N1 Day Time Survey

N1 is located at the back right hand corner of the site, next to the Quarantine Area. The predominant source of noise here was from traffic movements on the local R692 and M8 motorway. On site traffic noise included a JCB loader moving around site taking off and putting on attachments including reverse beeping. Furthermore some truck movement on site at the beginning of the survey was audible. Around the general site a flock of crows were heard cawing at the start of the survey but this eventually died out.

Secondary sources of noise included birds chirping in the surrounding area.

4.2 N2 Day Time Survey

N2 is located at the back left of the Waller's Lot site, opposite N1. The predominant source of noise here came from traffic noise on the M8 motorway. Other notable noise sources included trucks and a loader moving around the site and operating with a reverse beeping noise. Some DIY waste was unloaded which emitted a crashing sound on the site. Some birds could be heard chirping.

4.3 N3 Day Time Survey

N3 is located inside the entrance to the site, close to the road. As a result of its location, the main sources of noise at this location was traffic which created some interference throughout the survey. This included traffic coming and going from the site as well as traffic on the M8 and R692.

Bird chatter noise was also noted.

5.0 Summary of Daytime Noise Measurements

Noise Monitoring Location: N1(Boundary Monitoring Location)					
Period:	**Time**	**Measured Noise Levels (dB re. 2 x 10^{-5} Pa)**			**Comments**
		L_{Aeq}	**L_{AFMAX}**	**L_{A90}**	
Daytime:	08:45	47.4	71.5	39.0	Traffic noise on site from lorries and loaders (including reverse beepers) as well as off site from the R692 and M8 motorway were the most prevalent noise sources. Other noises noted included birds chirping and a gentle breeze.
	-	-	-	-	
	-	-	-	-	
Arithmetic Average (dB):		**47.4**	71.5	39.0	
Daytime Criterion, dB $L_{Ar,T}$:		**55**	-	**-**	
Evening:	-	-	-	-	This site is not required to monitor noise emissions during the evening period. The site is not defined as a new or revised licence since the guidelines were issued in 2016.
Arithmetic Average (dB):		-	-	-	
Evening Criterion, dB $L_{Ar,T}$:		-	-	-	
Night Time:	-	-	-	-	This site is not required to monitor noise emissions during the evening period. The site is not defined as a new or revised licence since the guidelines were issued in 2016.
	-	-	-	-	
Arithmetic Average (dB):		-	-	**-**	
Night time Criterion, dB $L_{Ar,T}$:		-	-	**-**	
Weather Conditions:					
	Daytime:		**Evening:**		**Night Time:**
Temperature (^{o}C)	14		-		-
Wind Speed (m/s)	1		-		-
Wind Direction:	South		-		-
Precipitation (mm):	0-1		-		-
Tonal Noise Assessment					
Daytime:	Run 1: None		-		-
Evening:	-		-		-
Night Time:	Run 1: None		-		-
Compliance Status – this is not a noise sensitive location					

Noise Monitoring Location: N2(Boundary Monitoring Location)					
Period:	**Time**	**Measured Noise Levels (dB re. 2 x 10^{-5} Pa)**			**Comments**
		L_{Aeq}	**L_{AFMAX}**	**L_{A90}**	
Daytime:	09:36	44.9	65.8	40.1	The most common noise sources recorded at this point came from lorries and loaders working on site as well as traffic noise from the M8 and a tractor working off site. Birds could be heard chirping throughout the noise survey.
	-	-	-	-	
	-	-	-	-	
Arithmetic Average (dB):		**44.9**	65.8	40.1	
Daytime Criterion, dB $L_{Ar,T}$:		**55**	-	**-**	
Evening:	-	-	-	-	This site is not required to monitor noise emissions during the evening period. The site is not defined as a new or revised licence since the guidelines were issued in 2016.
Arithmetic Average (dB):		-	-	-	
Evening Criterion, dB $L_{Ar,T}$:		-	-	-	
Night Time:	-	-	-	-	This site is not required to monitor noise emissions during the evening period. The site is not defined as a new or revised licence since the guidelines were issued in 2016.
	-	-	-	-	
Arithmetic Average (dB):		-	-	**-**	
Night time Criterion, dB $L_{Ar,T}$:		-	-	**-**	
Weather Conditions:					
	Daytime:		**Evening:**		**Night Time:**
Temperature (^{o}C)	14		-		-
Wind Speed (m/s)	1		-		-
Wind Direction:	South		-		-
Precipitation (mm):	0-1		-		-
Tonal Noise Assessment					
Daytime:	Run 1: None		-		-
Evening:	-		-		-
Night Time:	Run 1: None		-		-
Compliance Status – this is not a noise sensitive location					

Noise Monitoring Location: N3(Boundary Monitoring Location)					
Period:	**Time**	**Measured Noise Levels (dB re. 2 x 10^{-5} Pa)**			**Comments**
		L_{Aeq}	**L_{AFMAX}**	**L_{A90}**	
Daytime:	09:44	51.8	72.8	44.5	Traffic noise was again the predominant noise source noted at this location. Traffic noise was caused by lorries/loaders working on site and off site by traffic on the M8 motorway, the local access road and traffic entering/leaving the site.
	-	-	-	-	
	-	-	-	-	
Arithmetic Average (dB):		**51.8**	72.8	44.5	
Daytime Criterion, dB $L_{Ar,T}$:		**55**	-	**-**	
Evening:	-	-	-	-	This site is not required to monitor noise emissions during the evening period. The site is not defined as a new or revised licence since the guidelines were issued in 2016.
Arithmetic Average (dB):		-	-	-	
Evening Criterion, dB $L_{Ar,T}$:		-	-	-	
Night Time:	-	-	-	-	This site is not required to monitor noise emissions during the evening period. The site is not defined as a new or revised licence since the guidelines were issued in 2016.
	-	-	-	-	
Arithmetic Average (dB):		-	-	**-**	
Night time Criterion, dB $L_{Ar,T}$:		-	-	**-**	
Weather Conditions:					
	Daytime:		**Evening:**		**Night Time:**
Temperature (^{o}C)	14		-		-
Wind Speed (m/s)	1		-		-
Wind Direction:	South		-		-
Precipitation (mm):	0-1		-		-
Tonal Noise Assessment					
Daytime:	Run 1: None		-		-
Evening:	-		-		-
Night Time:	Run 1: None		-		-
Compliance Status – this is not a noise sensitive location					

6.0 Conclusions

Three locations were monitored for broadband and 1/3rd Octave frequency as part of this annual environmental noise survey at Waller's Lot.

Each point was monitored for 30 minute periods during the Daytime time survey.

The findings of the survey would indicate that the noise locations were not significantly affected or impacted by sources of noise at Waller's Lot.

The predominant source of noise at all monitoring points was traffic which was recorded both on and offsite.

There was no tonal noise determined at either monitoring location; therefore there are no requirements to apply penalties to the broadband measurement.

Appendix I Graphical Display of Raw Data

Tonal Noise:

The appropriate level differences vary with frequency. They should be greater than or equal to the following values in both adjacent one third octave bands:

· 15dB in low frequency one third octave bands (25Hz to 125Hz);
· 8dB in middle frequency bands (160Hz to 400Hz), and;
· 5dB in high frequency bands (500Hz to 10,000Hz)

This is the definition outlined by the EPA in the guidance note issued in 2012: NG4.

13/07/2017

Cirrus Research plc

Measurement Summary Report

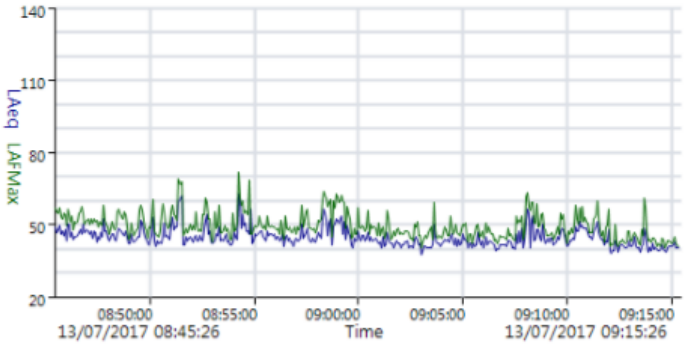
Name	Wallers Lot N1 Day			
Time	13/07/2017 08:45:26	**Person**	**Place**	**Project**
Duration	00:30:00	Richard Walsh	Wallers Lot Cashel	Environmental Noise
Instrument	G061817, CR:172B			

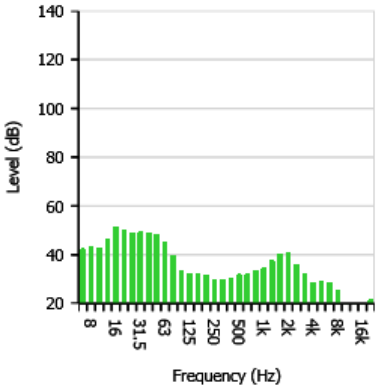
Calibration

Before 13/07/2017 08:44 Offset 0.51 dB **After** 13/07/2017 09:22 Offset 0.50 dB

Basic Values	
LAeq	47.4 dB
LAE	80.0 dB
LAFMax	71.5 dB

Statistical Levels (Ln)	
LAF1	57.9 dB
LAF5	51.1 dB
LAF10	48.2 dB
LAF50	42.6 dB
LAF90	39.0 dB
LAF95	38.2 dB
LAF99	37.0 dB





13/07/2017

Cirrus Research plc

Measurement Summary Report

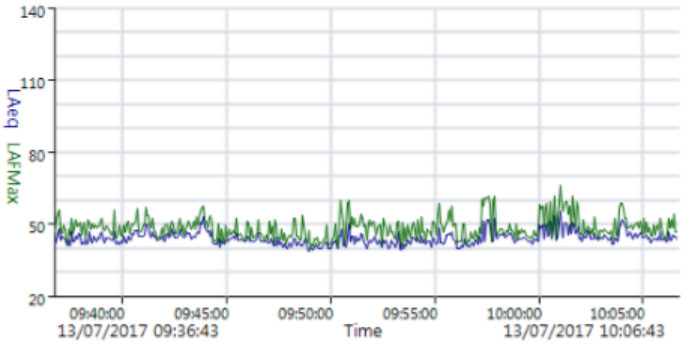
Name	Wallers Lot N2 Day			
Time	13/07/2017 09:36:43	**Person**	**Place**	**Project**
Duration	00:30:00	Richard Walsh	Wallers Lot Cashel	Environmental Noise
Instrument	G061082, CR:171B			

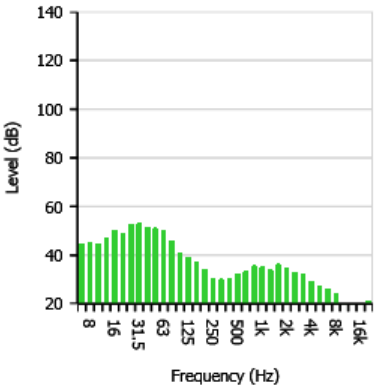
Calibration

Before 13/07/2017 09:36 Offset -0.07 dB **After** 13/07/2017 10:07 Offset -0.12 dB

Basic Values	
LAeq	44.9 dB
LAE	77.5 dB
LAFMax	65.8 dB

Statistical Levels (Ln)	
LAF1	54.1 dB
LAF5	48.5 dB
LAF10	46.6 dB
LAF50	42.8 dB
LAF90	40.1 dB
LAF95	39.5 dB
LAF99	38.7 dB





13/07/2017

Cirrus Research plc

Measurement Summary Report

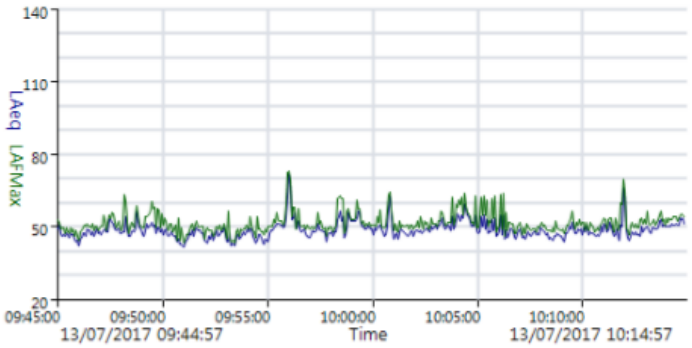
Name	Wallers Lot N3 Day			
Time	13/07/2017 09:44:57	**Person**	**Place**	**Project**
Duration	00:30:00	Richard Walsh	Wallers Lot Cashel	Environmental Noise
Instrument	G061817, CR:172B			

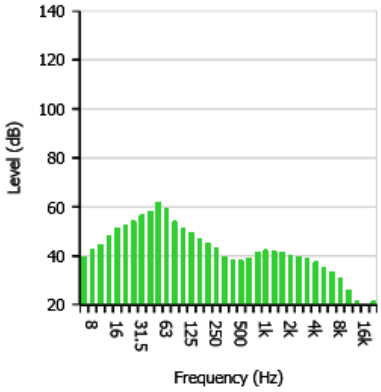
Calibration

Before 13/07/2017 09:44 Offset 0.43 dB **After** 13/07/2017 10:23 Offset 0.22 dB

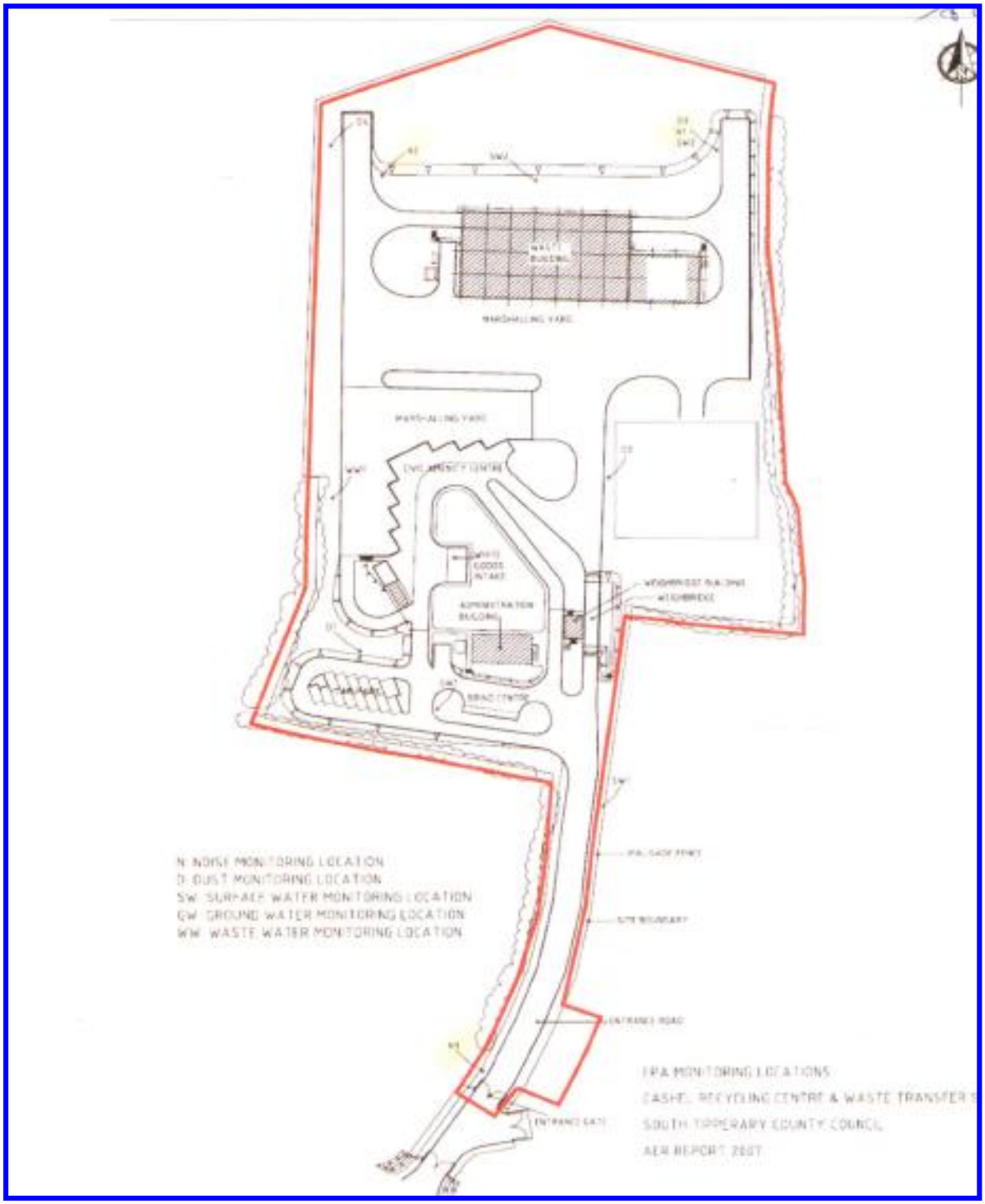
Basic Values	
LAeq	51.8 dB
LAE	84.4 dB
LAFMax	72.8 dB

Statistical Levels (Ln)	
LAF1	61.8 dB
LAF5	54.1 dB
LAF10	52.0 dB
LAF50	47.8 dB
LAF90	44.5 dB
LAF95	43.4 dB
LAF99	41.9 dB





Appendix II Site Map



Appendix III Calibration Certificates

Certificate of Calibration

Cirrus Research plc
dedicated to noise measurement

Equipment Details

Instrument Manufacturer	Cirrus Research plc
Instrument Type	CR:171B
Description	Sound Level Meter
Serial Number	G061082

Calibration Procedure

The instrument detailed above has been calibrated to the publish test and calibration data as detailed in the instrument hand book, using the techniques recommended in the latest revisions of the International Standards IEC 61672-1:2013, IEC 61672-1:2002, IEC 60651:1979, IEC 60804:2001, IEC 61260:1995, IEC 60942:2003, IEC 60942:1997, IEC 61252:1993, ANSI S1.4-1983, ANSI S1.11-1986 and ANSI S1.43-1997 where applicable.
Sound Level Meters: All Calibration procedures were carried out by substituting the microphone capsule with a suitable electrical signal, apart from the final acoustic calibration.

Calibration Traceability

The equipment detailed above was calibrated against the calibration laboratory standards held by Cirrus Research plc. These are traceable to International Standards (A.0.6). The standards are:

Microphone Type	B&K 4192	Serial Number	1920791	Calibration Ref.	S6450
Pistonphone Type	B&K 4220	Serial Number	613843	Calibration Ref.	S6388

Calibrated by T. A. Goodall

Calibration Date	09 March 2017
Calibration Certificate Number	246921

This Calibration Certificate is valid for 12 months from the date above.

Cirrus Research plc, Acoustic House, Bridlington Road, Hunmanby, North Yorkshire, YO14 0PH
Telephone: +44 (0) 1723 891655 Fax: +44 (0) 1723 891742
Email: sales@cirrusresearch.co.uk

Certificate of Calibration

Cirrus Research plc
dedicated to noise measurement

Equipment Details

Instrument Manufacturer	Cirrus Research plc
Instrument Type	CR:511E
Description	Acoustic Calibrator
Serial Number	41373

Calibration Procedure

The acoustic calibrator detailed above has been calibrated to the published data as described in the operating manual. The procedures and techniques used to follow the recommendations of the IEC standard Electroacoustics – Sound Calibrators IEC 60942:2003, IEC 60942:1997, BS EN 60942:1998 and BS EN 60942:2003 where applicable.. The calibrator's main output is 94.00 dB (1 Pa) and this was set within the 0.01 dB resolution of the test system, i.e. one hundredth of a decibel. Numbers in {parenthesis} refer to the paragraph in IEC 60942.

Calibration Traceability

The calibrator above was calibrated against the calibration laboratory standards held by Cirrus Research plc. These are traceable to International Standards {A.0.6}. The standards are:

Microphone Type	B&K 4192	Serial Number	1920791	Calibration Ref.	S6450
Pistonphone Type	B&K 4220	Serial Number	613843	Calibration Ref.	S6388

Calibration Climate Conditions

The climatic test conditions were all maintained within the permitted limits of IEC 60942:1997.

Temperature	{B.3.2}	Permitted band 15°C to 25°C
Humidity	{B.3.2}	Permitted band 30% to 90% RH
Static Pressure	{B.3.2}	Permitted band 85 kPa to 105 kPa
Ambient Noise Level	{B.3.3.6}	Max permitted level 64 dB(Z)

Measurement Results

The figures below are the Calibration Laboratory test limits for this model calibrator and have a smaller tolerance than those permitted in IEC 60942.

94 dB Output	94.00 dB	Permitted band	93.95 to 94.05dB
104 dB Output	103.99 dB	Permitted band	103.80 to 104.30dB
Frequency	998 Hz	Permitted band	990 to 1010Hz

Uncertainty

With an uncertainty coefficient of k=2, i.e. a 95% confidence level, the uncertainty of each measure is

94 dB Output	± 0.13 dB	104 dB Output	± 0.14 dB
Frequency	± 0.1 Hz	Level Stability	± 0.04 dB

Calibrated by T. A. Goodrich

Calibration Date 09 March 2017

Calibration Certificate Number 246920

This Calibration Certificate is valid for 12 months from the date above.

Cirrus Research plc, Acoustic House, Bridlington Road, Hunmanby, North Yorkshire, YO14 0PH
Telephone: +44 (0) 1723 891655 Fax: +44 (0) 1723 891742
Email: sales@cirrusresearch.co.uk

Certificate of Calibration

Cirrus Research plc
dedicated to noise measurement

Certificate Number: **110937**

Date of Issue: **09 March 2017**

Microphone Capsule

Manufacturer: **Cirrus Research plc** Serial Number: **209359D**

Model Number: **MK224**

Calibration Procedure

The microphone capsule detailed above has been calibrated to the published data as described in the operating manual of the associated sound level meter (where applicable).

The frequency response was measured using an electrostatic actuator in accordance with BS EN 61094-6:2005 with the free-field response derived via standard correction data traceable to the National Physical Laboratory, Middlesex, UK.

The absolute sensitivity at 1 kHz was measured using an acoustic calibrator conforming to IEC 60942:2003 Class 1.

Date of Calibration: **27 January 2017**

Open Circuit Sensitivity at 1 kHz: **49.4 mV/Pa** **-26.1 dB rel 1 V/Pa**

Environmental Conditions

Pressure: **100.20 kPa**

Temperature: **18.0 °C**

Humidity: **30.0 %**

Calibration Laboratory

Laboratory: Cirrus Research plc
Acoustic House, Bridlington Road, Hunmanby
North Yorkshire, YO14 0PH, United Kingdom

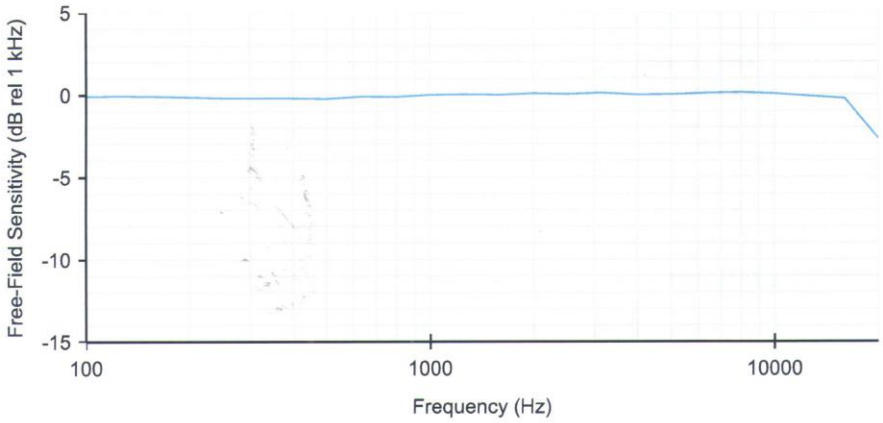
Test Engineer: Debra Swalwell

Cirrus Research plc, Acoustic House, Bridlington Road
Hunmanby, North Yorkshire, YO14 0PH, United Kingdom
Telephone: 0845 230 2434 **Int**: +44 1723 891655
Email: sales@cirrusresearch.co.uk
Web: www.cirrusresearch.co.uk
UK Registration No. 987160

bsi. ISO 9001 Quality Management FM 531001 ISO 14001 Environmental Management EMS 552104

Free-Field Frequency Response

Frequency (Hz)	Free-Field Sensitivity (dB rel 1 kHz)	Actuator to Free-Field Correction (dB)
100	-0.09	0.00
125	-0.06	0.04
160	-0.09	0.03
200	-0.13	0.01
250	-0.18	-0.04
315	-0.19	-0.04
400	-0.20	-0.04
500	-0.23	-0.08
630	-0.10	0.03
800	-0.11	-0.04
1 000	0.00	-0.02
1 250	0.04	-0.07
1 600	0.01	-0.22
2 000	0.09	-0.23
2 500	0.04	-0.40
3 150	0.12	-0.58
4 000	0.00	-1.01
5 000	0.02	-1.49
6 300	0.10	-2.12
8 000	0.14	-3.12
10 000	0.06	-4.69
12 500	-0.09	-6.32
16 000	-0.24	-8.36
20 000	-2.68	-12.17



Certificate of Calibration

Cirrus Research plc
dedicated to noise measurement

Equipment Details

Instrument Manufacturer	Cirrus Research plc
Instrument Type	CR:172B
Description	Sound Level Meter
Serial Number	G061817

Calibration Procedure

The instrument detailed above has been calibrated to the publish test and calibration data as detailed in the instrument hand book, using the techniques recommended in the latest revisions of the International Standards IEC 61672-1:2002, IEC 60651:1979, IEC 60804:2001,IEC 61260:1995, IEC 60942:1997, IEC 61252:1993, ANSI S1.4-1983, ANSI S1.11-1986 and ANSI S1.43-1997 where applicable.
Sound Level Meters: All Calibration procedures were carried out by substituting the microphone capsule with a suitable electrical signal, apart from the final acoustic calibration.

Calibration Traceability

The equipment detailed above was calibrated against the calibration laboratory standards held by Cirrus Research plc. These are traceable to International Standards (A.0.6). The standards are:

Microphone Type	B&K 4192	Serial Number	1920791	Calibration Ref.	86450
Pistonphone Type	B&K 4220	Serial Number	613843	Calibration Ref.	86388

Calibrated by T. A. Goodhill

Calibration Date 04 November 2016
Calibration Certificate Number 242959

This Calibration Certificate is valid for 12 months from the date above.

Cirrus Research plc, Acoustic House, Bridlington Road, Hunmanby, North Yorkshire, YO14 0PH
Telephone: +44 (0) 1723 891655 Fax: +44 (0) 1723 891742
Email: sales@cirrusresearch.co.uk

Certificate of Calibration

Cirrus Research plc
dedicated to noise measurement

Certificate Number: **108637**
Date of Issue: **04 November 2016**

Acoustic Calibrator

Manufacturer: **Cirrus Research plc** Serial Number: **59318**
Model Number: **CR:515**

Calibration Procedure

The sound calibrator detailed above has been calibrated to the published data as described in the operating manual and in the half-inch configuration. The procedures and techniques used are as described in IEC 60942:2003 Annex B – Periodic Tests and three determinations of the sound pressure level, frequency and total distortion were made.

The sound pressure level was measured using a WS2F condenser microphone type MK:224 manufactured by Cirrus Research plc.

The results have been corrected to the reference pressure of 101.33 kPa using the manufacturer s data.

Date of Calibration: **28 October 2016**

Initial Calibration Results

Measurement	Level (dB)	Frequency (Hz)	Distortion (% THD + Noise)
1	94.05	1000.3	0.37
2	94.04	1000.3	0.38
3	94.06	1000.3	0.38
Average	**94.05**	**1000.3**	**0.38**
Uncertainty	± 0.13	± 0.1	± 0.10

The reported uncertainties of measurement are expanded by a coverage factor of k=2, providing a 95% confidence level.

Adjusted Calibration Results

Measurement	Level (dB)	Frequency (Hz)	Distortion (% THD + Noise)
1	94.00	1000.3	0.38
2	93.99	1000.3	0.38
3	94.01	1000.3	0.39
Average	**94.00**	**1000.3**	**0.38**
Uncertainty	± 0.13	± 0.1	± 0.10

The reported uncertainties of measurement are expanded by a coverage factor of k=2, providing a 95% confidence level.

Cirrus Research plc, Acoustic House, Bridlington Road
Hunmanby, North Yorkshire, YO14 0PH, United Kingdom
Telephone: 0845 230 2484 Int: +44 1723 891655
Email: sales@cirrusresearch.co.uk
Web: www.cirrusresearch.co.uk
UK Registration No: 987160

bsi. ISO 9001 Quality Management FM 531001 ISO 14001 Environmental Management EMS 552104

Certificate of Calibration

Cirrus Research plc
dedicated to noise measurement

Certificate Number: **108638**

Date of Issue: **04 November 2016**

Microphone Capsule

Manufacturer: **Cirrus Research plc** Serial Number: **203029A**

Model Number: **MK224**

Calibration Procedure

The microphone capsule detailed above has been calibrated to the published data as described in the operating manual of the associated sound level meter (where applicable).

The frequency response was measured using an electrostatic actuator in accordance with BS EN 61094-6:2005 with the free-field response derived via standard correction data traceable to the National Physical Laboratory, Middlesex, UK.

The absolute sensitivity at 1 kHz was measured using an acoustic calibrator conforming to IEC 60942:2003 Class 1.

Date of Calibration: **02 November 2016**

Open Circuit Sensitivity at 1 kHz: **51.8 mV/Pa** **-25.7 dB rel 1 V/Pa**

Environmental Conditions

Pressure: **101.50 kPa**

Temperature: **20.0 °C**

Humidity: **30.0 %**

Calibration Laboratory

Laboratory: Cirrus Research plc
Acoustic House, Bridlington Road, Hunmanby
North Yorkshire, YO14 0PH, United Kingdom

Test Engineer: Debra Swalwell

Cirrus Research plc, Acoustic House, Bridlington Road
Hunmanby, North Yorkshire, YO14 0PH, United Kingdom
Telephone 0845 230 3434 **Int** +44 1723 891655
Email sales@cirrusresearch.co.uk
Web www.cirrusresearch.co.uk
UK Registration No. 987160

bsi. ISO 9001 Quality Management FM 531001 ISO 14001 Environmental Management EMS 552104

Free-Field Frequency Response

Frequency (Hz)	Free-Field Sensitivity (dB rel 1 kHz)	Actuator to Free-Field Correction (dB)
100	-0.11	-0.02
125	-0.13	-0.03
160	-0.04	0.08
200	-0.13	0.02
250	-0.15	0.00
315	-0.10	0.05
400	-0.15	0.01
500	-0.14	0.02
630	-0.08	0.05
800	-0.01	0.06
1 000	0.00	-0.02
1 250	-0.03	-0.14
1 600	0.01	-0.21
2 000	0.03	-0.29
2 500	-0.17	-0.61
3 150	-0.16	-0.86
4 000	-0.41	-1.42
5 000	-0.70	-2.20
6 300	-1.08	-3.30
8 000	-1.78	-5.04
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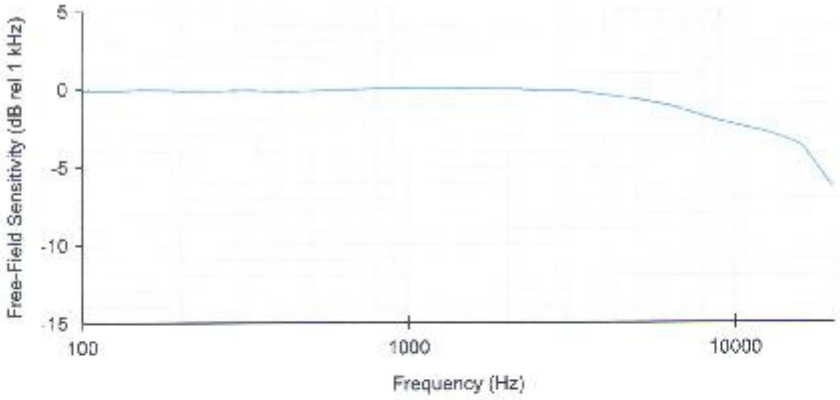
16 000	-3.61	-11.73
20 000	-6.36	-15.85



Appendix IV Glossary of Terms

Note: Not all terms were used in the description of noise for this noise survey.

Ambient noise	The totally encompassing sound in a given situation at a given time, usually composed of sound from many sources, near and far.
Acoustic shadow	An acoustic shadow is an area through which sound waves fail to propagate, due to topographical obstructions or disruption of the waves via phenomena such as wind currents.
Background noise	The steady existing noise level present without contribution from any intermittent sources. 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 (LAF90,T).
Broadband	Sounds that contain energy distributed across a wide range of frequencies.
Competent person	Individual possessing a combination of technical knowledge, experience and skills as outlined in Section 2.0 and who can demonstrate both practical and theoretical competence.
Criterion noise level	The long term mean value of the noise level that must not be exceeded. This is generally stipulated in the IPPC/Waste licence and it may be applied to a noise source, a boundary of the activity or to an NSL in the vicinity of the site.
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 uPa).
Facade level	The noise level at a location 1m from the facade of a building is described by the term facade level, and is subject to a higher noise level than one in an open area (free-field conditions) due to reflection effects.
Free field	These are conditions in which the radiation from sound sources is unaffected by the presence of any reflecting boundaries or the source itself. 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.
Hertz (Hz)	The unit of sound frequency in cycles per second.
Impulsive	A noise that is of short duration (typically less than one second), the sound pressure level of which is significantly higher than the background.
LAeq,T	This is the equivalent continuous sound level. It is a type of average and is used to describe a fluctuating noise in terms of a single noise level over the sample period (T).The closer the LAeq value is to either the LAF10 or LAF90 value indicates the relative impact of the intermittent sources and their contribution. The relative spread between the values determines the impact of intermittent sources, such as traffic, on the background.
LAFN	The A-weighted noise level exceeded for N% of the sampling internal. Measured using the "Fast" time weighting.
LAr,T	The Rated Noise Level, equal to the LAeq during a specified time interval (T), plus specified adjustments for tonal character and/or impulsiveness of the sound.

LAF10 Refers to those A-weighted noise levels in the top 10 percentile of the sampling interval; it is the level which is exceeded for 10% of the measurement period. It is used to determine the intermittent high noise level features of locally generated noise and usually gives an indicator of the level of road traffic. Measured using the "Fast" time weighting.

LAF90 Refers to those A-weighted noise levels in the lower 90 percentile of the sampling interval; it is the level which is exceeded for 90% of the measurement period. It will therefore exclude the intermittent features of traffic and is used to describe a background level. Measured using the "Fast" time weighting.

LAFmax The maximum **RMS** A-weighted sound pressure level occurring within a specified time period. Measured using the "Fast" time weighting.

LAFmin The minimum **RMS** A-weighted sound pressure level occurring within a specified time period. Measured using the "Fast" time weighting.

Lden Is the 24 hour noise rating level determined by the averaging of the Lday with the Levening plus a 5 dB penalty and the Lnight plus a 10 dB penalty.

Low background noise An area of low background noise is one where the existing background noise levels measured during an environmental noise survey are as follows:

o Average Daytime Background Noise Level ≤40dB LAF90, and;
o Average Evening Background Noise Level ≤35dB LAF90, and;
o Average Night-time Background Noise Level ≤30dB LAF90.

Low frequency noise LFN - noise which is dominated by frequency components towards the lower end of the frequency spectrum; see Appendix VI for a more detailed discussion.

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

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

Noise sensitive location NSL – 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.

Octave band A frequency interval, the upper limit of which is twice that of the lower limit. For example, the 1,000Hz octave band contains acoustical energy between 707Hz and 1,414Hz. The centre frequencies used for the designation of octave bands are defined in ISO and ANSI standards.

Rating level See LAr,T.

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

SEL (LAX or LAE) Sound exposure level **–** a 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.

Sound pressure level	Sound pressure refers to the fluctuations in air pressure caused by the passage of a sound wave. It may be expressed in terms of sound pressure level at a point.
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 a 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 (LAeq, 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	Sounds which cover a range of only a few Hz which contains a clearly audible tone, i.e. distinguishable, discrete or continuous noise (whine, hiss, screech, or hum etc.) are referred to as being 'tonal'.
1/3 octave analysis	Frequency analysis of sound such that the frequency spectrum is subdivided into bands of one–third of an octave each.