



**Noise Assessment
And Management Plan**

for the

**Brian Armistead Ltd.
Sinkfall Recycling
Waste Reclamation Facility
Sinkfall
Barrow-in-Furness**

Report for:
Brian Armistead Ltd.
Sinkfall Farm
Rakesmoor Lane
Barrow-in-Furness
Cumbria
LA14 4QE

Tel: 01229 465000
Mob: 0783141414569

Management Plan by:
D J Baldwin
BSc. CEnv. MCIWM
Technical Director
Recogen Ltd.
1 Shackleton Way
SHREWSBURY,
SY3 8SW
Tel: 01743 340630

PERMIT EPR/DB3701SN/V003

Revision Date 19th July 2024

Revisions

1. Noise due to vehicles and Biomass Boiler
2. Noise due to Glass cullet
3. Noise due to aggregates crushing

Executive Summary

ES1

The purpose of this Document is to minimise the risk of noise nuisance arising from the site and therefore have due regard for people, living things and the local environmental amenity value.

This document highlights the high risk areas and activities; and provide simple rules, guidance and procedures for identifying the significant risks and for assessing noise from machines and equipment and taking action as required to mitigate or attenuate noise emissions.

ES2 The Recycling Facility

The site provides composting and waste recovery/recycling facilities for Household, Commercial and Industrial Waste materials, including hazardous waste materials, green waste, soil and aggregates; and is operated under an Environment Agency regulated Environmental Permit.

The total capacity of the site is for 120,000t/yr. There are limits specified for various types of materials in storage or in processing. These include:

500 t limit for material prior to disposal

1000t limit for materials associated with composting – pre-storage, maturation etc.

10,000 t limit of material prior to processing for recovery such as soil and aggregates.

In 2017 a new biomass boiler system was added to enable agricultural crops and other materials to be dried and conditioned to form products including animal feeds, animal bedding and dry woodchip biomass to be used in agriculture and associated industries. The Combustion component of this is operated under a Local Authority regulated Environmental– LAPPC Part B - Permit.

ES3 The Composting Facility

The site provides composting facilities for green waste and is operated in keeping with the conditions of the 'Environmental Permit'. The Permit provides the requirement for a range of management systems, including training of staff, waste acceptance criteria and standards for the management of the composting processes. The systems help ensure that the materials can be composted at the site without causing environmental nuisance.

The composting is undertaken in accordance with a Quality Management System known as PAS100. It means that the facility produces quality compost that can be beneficially used in agriculture or for landscaping purposes.

The facility provides a good measure of environmental protection as follows:

1. Separation distance of the principal areas of activity away from sensitive receptors
2. The quantity of material in process externally is managed to a relatively low quantity
3. The site has for several years safely undertaken composting of green waste
4. The site operatives work to established Health & Safety procedures
5. The key processes are either undertaken within buildings or else within the confines of walled buildings that act as barriers for noise propagation.
6. Equipment that is operated during night time is housed within buildings or enclosures.
7. The external operations are undertaken with due consideration for the wind direction

ES4 The Aggregates Facility

The site provides storage and screening of aggregates materials in keeping with the conditions of the 'Environmental Permit'. Previously a mobile plant type 'aggregates crushing machine' was brought in to undertake the crushing of the material. This was not very flexible as the dates fixed may then have become too windy, dry or the wind in the wrong direction.

The new Permit will allow more flexibility and better control of noise and dust as the management will be directly responsible for the activity and not reliant on third parties.

The Permit provides the requirement for a range of management systems, including training of staff, waste acceptance criteria and standards for the management of the aggregates processes. The systems help ensure that the materials can be processed at the site without causing environmental nuisance.

The aggregate processing is undertaken in accordance with a Quality Management System known as The Aggregates Protocol. It means that the facility produces quality aggregates size grades and blends to suit multiple road building or similar earthwork and structural purposes.

The facility provides a good measure of environmental protection as follows:

1. Separation distance of the principal areas of activity away from sensitive receptors
2. The quantity of material in process is managed to minimise each crushing duration.
3. The site has for several years safely undertaken this work without issues.
4. The site operatives work to established Health & Safety procedures
5. The key processes are undertaken to the west of the buildings within the confines of soil storage heaps that act as barriers for noise propagation.
6. There is no equipment for this activity that needs operating during the night time.
7. The external operations are undertaken with due consideration to the wind direction

ES5 Principal Sources of Day-time noise

Including the above, there are a number of principal sources of day-time noise:

1. Compost shredding
2. Compost screening
3. Aggregates crushing
4. Aggregates screening
5. Wood shredding
6. Wood screening
7. Materials Handling vehicles (engine noise and reversing alarms)
8. Materials being handled including glass cullet, metals, cans, aggregates.
9. Waste container movements; metals skips, doors, bangs and scrapes
10. Delivery Vehicles – engines noise, doors etc.

These are reviewed in detail, with due consideration of the typical noise emissions, mitigation and propagation of the noise toward sensitive receptors.

ES6 Principal Sources of Night-time noise

There are three principal sources of night-time noise:

1. Boiler Fans and motors
2. The Warm Air drier Fans
3. The composting maturation fan

These units are housed within acoustic enclosures (containerised or within the buildings). The fans are situated 'in-line' and self-muffled due to the installation.

Besides from the acoustic enclosures, these equipment are installed in such a position within the facility that the propagation of noise is **mitigated** by the buildings, tanks and the earth bank constructions surrounding the facility. Nearby dwellings to the east are also sheltered by the farm buildings.

The nearest third party dwellings have been identified and each is in excess of 200metres from the site and principal noise sources. The attenuation of noise due to the distance is therefore significant and beneficial. Given that the scheme includes a high degree of acoustic cladding for the Boiler Unit and the Compost fan so that noise generation is minimised and noise propagation is further limited due to the size and shape of the main building, tanks and earth banks.

A background noise assessment has been considered and a mean night-time LA90 level of **35dBA** deemed appropriate. The scheme design and noise management plan aims to provide that residual noise levels shall be retained **at less than 35dBA** during the night-time.

Using mathematical noise decay calculations, the residual noise has been predicted at the sensitive receptors. In each instance, without taking account of the benefit of the site constructional features, but with the fitment of appropriate acoustic enclosures the residual noise due to the facility can be predicted to be within the background levels at the dwellings of the sensitive receptors.

Contents

Executive Summary	1
1.0 Introduction.....	1
2.0 Site Location with Respect to Nearby Receptors	2
3.0 Noise Sources	4
4.0 Evaluation of Noise Level.....	5
5.0 Background Noise Levels	6
6.0 Projection of the Residual Noise Levels at Sensitive Receptors	7
7.0 Noise Management Criteria	8
8.0 Noise Management Plan	9
9.0 Background Noise	10
Appendix 1 – Standard Noise level Data	10
Appendix 2 – Operation Specific Noise level Data	10

1.0 Introduction

1.1 Noise Assessment

This report provides a Noise Assessment and Management Plan for the Materials Reclamation, Recycling and Composting Facility known as 'Sinkfall Recycling' at Sinkfall Farm.

The Noise Risks have been considered by reference to the guidelines described in the '**ENVIRONMENT AGENCY NOISE GUIDANCE**', Internal Guidance for the Regulation of Noise at Waste Management Facilities, JULY 2002, Version 3.0.

The proposed development is to be located at a distance (>200m) away from the nearest third party domestic dwelling house type receptors.

The key sources of noise include:

1. Compost shredding – The High powered engines together with the shredding action.
2. Compost screening - The engine noise together with the rotational bearings and belt rollers.
3. Aggregates crushing - The High powered engines together with the crushing action.
4. Aggregates screening - The engine noise together with the rotational bearings and belt rollers.
5. Wood shredding - The High powered engines together with the shredding action.
6. Wood screening - The engine noise together with the rotational bearings and belt rollers.
7. Materials Handling vehicles - mechanical shovels, (engine noise and reversing alarms)
8. Materials being handled including glass cullet, metals, cans, aggregates.
9. Waste container movements; metals skips, doors, bangs and scrapes
10. Delivery Vehicles – engines noise, doors etc.
11. Ventilation Fans for the aeration of the composting maturation.
12. A biomass burning boiler with associated low powered motors and compressors.
13. Ventilation Fans for the aeration of the wood drying system

The activities numbered 1 to 10 are in current operation during the day-time but only some of activities (11 – 13) may be operational during the night.

Materials handling may take place during the day both internally or externally. The equipment are appropriately muffled with silencers and acoustic panels. The reversing beepers as fitted to the loading shovels have recently been replaced with white noise types that generate a noise pitch that entails less energy and therefore does not carry so far.

The ventilation fans are generally housed within the buildings or else within acoustic enclosures.

The design of the Biomass Boiler system includes a number of fans and motors of sizes that do not entail any significant level of noise generation or emission.

2.0 Site Location with Respect to Nearby Receptors

The site is located at the following address and grid reference. A location map is shown at Fig 1a.

Sinkfall Farm
Rakesmoor Lane
Barrow-in-Furness
Cumbria LA14 4QE National Grid Reference: SD2118,7358

Figure 1: Sinkfall Recycling Facility Location Map

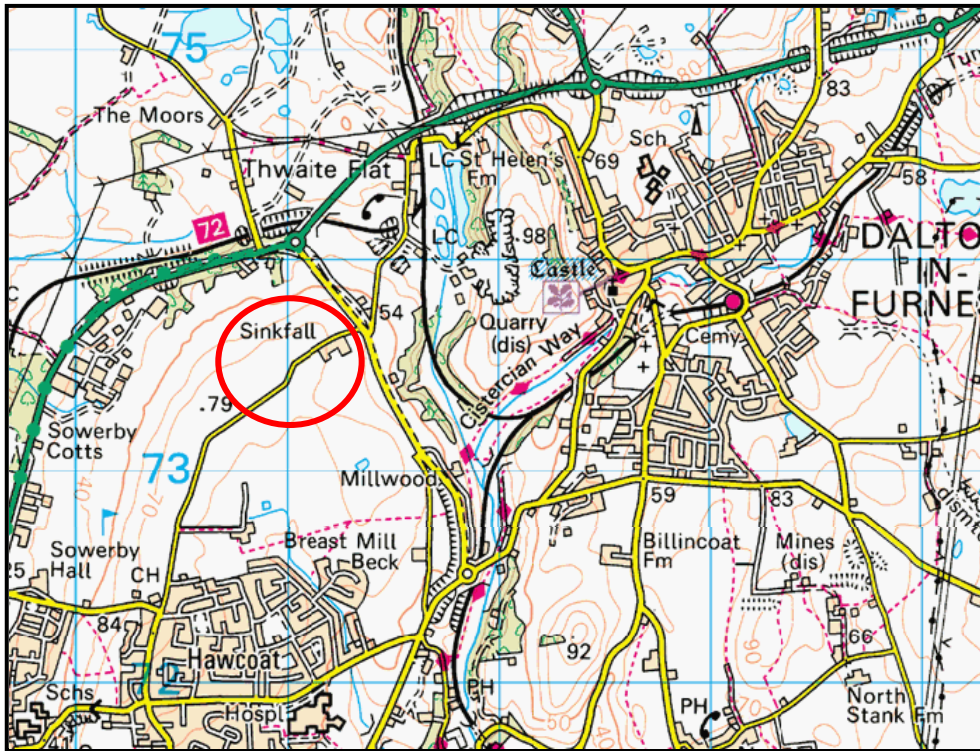


Figure 2: Sinkfall Recycling Facility with regard to nearby receptors

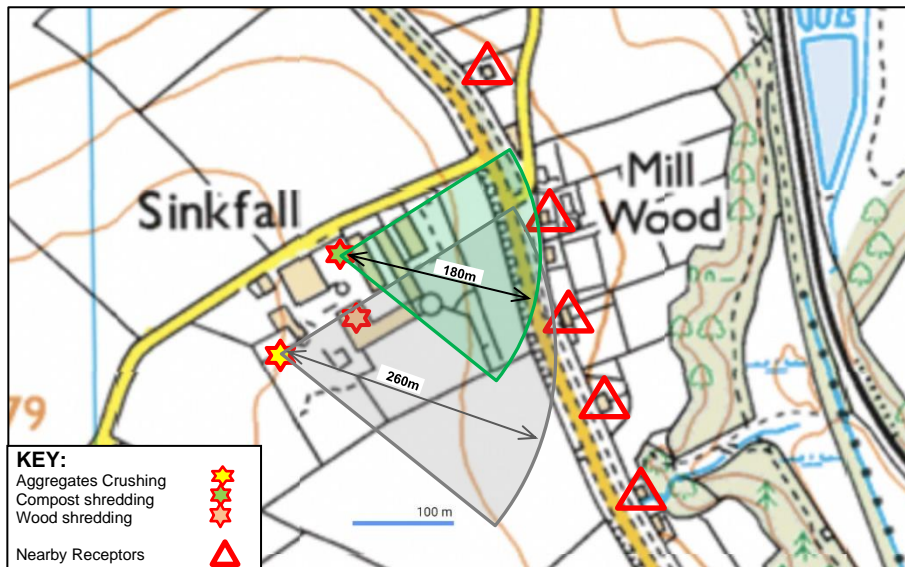


Figure 2. Site Plan Showing Noise Sources during day and night-time at Sinkfall

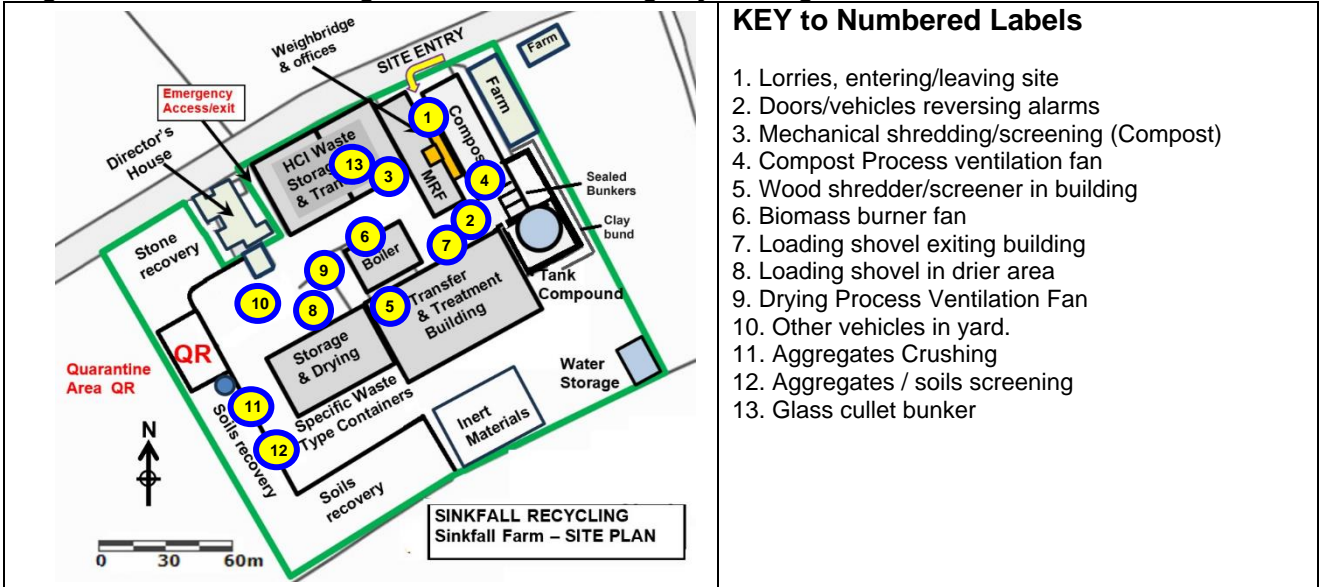
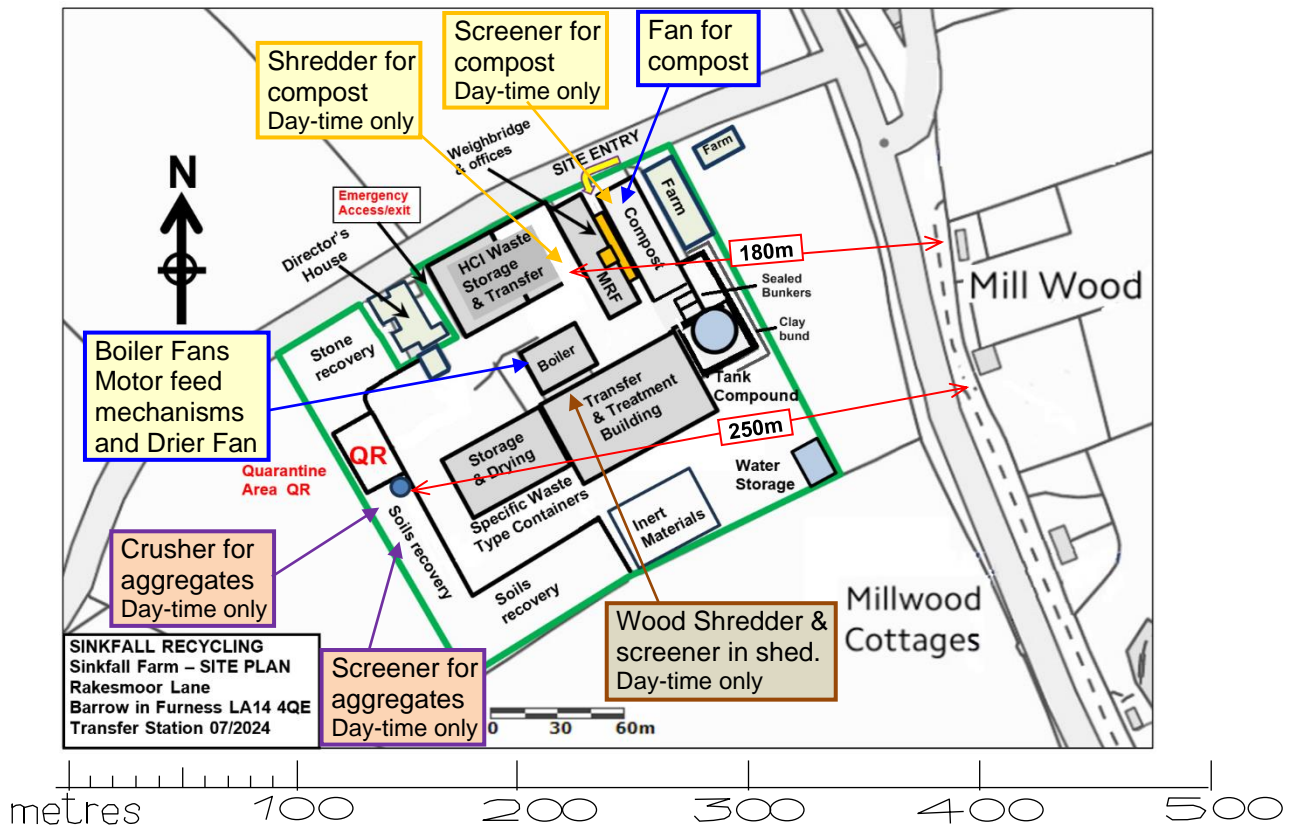


Figure 3. Site Plan showing areas of principal noise sources and distance to dwellings.



3.0 Noise Sources

3.1 Compost

The primary noise source is the shredding. This may entail a high pitch drone of the high powered engine together with the drone of the shredding rotor and crashing of the material as it is broken apart within the machine. Modern machines are now designed to be 'slow-speed' shredders that use counter rotating serrated rotors, rather than the 'high-speed' flail hammer types. The shredder noise is accompanied by the loading shovel noise, which includes the engine, the noises of materials being loaded and tipped off, and the reversing beepers.

Sorting and shredding is undertaken within the northern transfer area. The material is then transferred to the composting building. Shredding is only required 5 or 6 times per year.

The mechanical activities to move the material are only undertaken during the day, and the requirement for aeration can be undertaken for a few hours each week by using passive fan ventilation within the building, which is relatively quiet and spares disturbing the material. The compost undergoes the sanitisation and stabilisation phases of composting; is then screened externally and the compost product stored in the building where it is again aerated intermittently using the electric fan, to condition the compost.

3.2 Aggregates

Aggregate materials are sorted and stored in stockpiles. If crushing is required, this will take place during the day; is infrequent and may only last for one day every few months. With the new Permit, this activity can be planned and managed, to suit the wind and weather conditions.

3.3 Wood

Waste wood materials are sorted and stored in stockpiles. The shredding is undertaken within the large building during the day. It is infrequent and may only be required one day every month. If screening is required, this is undertaken at the same time.

3.4 Vehicle Movements

Vehicle Movements into and out from the site. The site starts work from 6.00AM when vehicles quietly leave to go out for collections. The waste vehicles delivering material start to arrive from 08:00 onwards and becomes busier towards late morning, and again later in the afternoon. Work winds down after 4:30PM and no significant work activities are undertaken after 6PM.

3.5 The Boiler and Drier Fans

The boiler works continuously through the day and night when in operation. The boiler is installed within a thermally clad building, and the associated fans direct air into the boiler and so there is minimum source noise emissions. The conveyors and associated equipment are within the building. Occasionally the wood-chip hoppers need replenishing, using a loading shovel.

The driers fan is within its own enclosure and the output is ducted to the various points of use; either the drying containers or the drier building. The noise emission from the fan is therefore attenuated by the system.

3.6 Glass Cullet

This is stored in the northern building and the noise when moved is attenuated by the enclosure.

4.0 Evaluation of Noise Level

4.1 Principal Noise Sources and Levels

The principal sources of noise emissions have been determined and shown in figures 2. and 3. Data has been provided at Table 1. to enable an assessment of noise from the various machines and operations.

The movement of materials at the site entails day-time noise that is generated by materials handling vehicles (loading shovels), and some specific equipment as listed. These noise emissions are attenuated by vehicle specific exhaust muffling, acoustic panels and by the various buildings and enclosures that provide significant noise muffling.

The primary sources of continuous night-time noise include:

1. The Biomass fuelled Boiler. This is located within a self-contained enclosure within a building. The exhaust from the Boiler entails low pressure gas movement and is designed to avoid any directional discharge of noise toward the nearest dwelling. Associated with this are the small Blower Fans of the boiler system.
2. The 'Compost Fan'. This comprises a small electric Fan that aerates the compost within the secondary building. The fan neither has open inlets nor open exhausts/outlets. The fan is housed in the secondary building i.e. within an acoustic enclosure with the side walls and roof acoustically clad to the appropriate requirements.
3. Process fans/compressors within the main buildings. There are a number of motors in the buildings.

The noise attenuation due to topography is assumed to be no more than 5dBA.

For the purposes of assessment of any noise impact, attention is focussed on the noise emitted from the primary sources i.e. the generator and fans, however, the Noise Management Plan also takes into consideration and pays attention to traffic, beepers and other noise sources such as pumps and motors.

More general reference data is shown at Appendix 1. This enables a wider appreciation of noise sources types and characteristics. Process specific reference Data is shown at Appendix 2.

Table 1: The principal activities where noise is generated include:

Noise sources		Noise levels at 5m
External Shredder	Engine driven, high horse-powered mechanical shredder of the high speed flail hammer type system	400-500 HP engine. High Speed 84-85 dBA @ 10m continuous while working
External Screener	Engine driven, high horse-powered mechanical shredder of the high speed flail hammer type system	150-200 HP engine. Slow Speed 75-80 dBA @ 10m continuous while working
External Aggregates Crusher	Electrically driven, high horse-powered mechanical crusher machine	400-500 kW. Slow Speed 80-82 dBA continuous while working
External Aggregates Screener	Electrically driven, medium horse-powered mechanical trommel or vibrating deck screener. Associated noise of materials dropping from elevators.	150-200 HP engine. Slow Speed 75-80 dBA @ 10m continuous while working.
Internal Wood Shredder	Electrically driven, high horse-powered mechanical shredder of the slow speed auger grinding system	400-500 kW. Slow Speed 80-82 dBA continuous while working

Compost Fan	Electrically driven fans (inside buildings) Electrically driven pumps and compressors.	2.5 - 10kW motors continuous while working 73-75 dBA at 1m
Boiler Process Fans	Electrically driven fans (inside buildings)	2.5 - 10kW motors continuous while working 55-65 dBA at 1m
Drier Process Fan	Electrically driven fans (inside acoustic enclosure)	25 - 50kW motor continuous while working 75-85 dBA attenuated to 65dBA
Other Motors	Electrically driven pumps and compressors.	2.5 - 10kW motors continuous while working 73-75 dBA at 1m
Loading shovels	Agricultural loading shovels 50-120 HP engine	intermittent while working 75-85 dBA
Tractors with trailers	Tractor 100-250 HP engines.	intermittent while working 84-85 dBA
Lorries and other large vehicles	Arriving and leaving site. Manoeuvring and changing over containers	intermittent while working 84-85 dBA

3.2 Principal Night-time Noise sources

The noise emission during the night-time is the combination of noise from the Boiler Fans, the Drier Fan, and the compost aeration fan plus some small electrical motors.

3.3 The Noise Levels from the Principal Night-time Noise Sources

The Drier fan is operated at a rated noise level of **60dBA at 10 metre distant**, due to the standard '**Containerised Acoustic Enclosure**'.

The residual noise from the Boiler Fans and motors accounting for the benefit of the acoustic cladding and the building enclosure is taken as **55 dBA**.

The residual noise from the Compost aeration Fan and motor accounting for the benefit of the acoustic the building enclosure is taken as **62 dBA**.

5.0 Background Noise Levels

Baseline, background assessment of noise has been estimated. The aim is to provide systems to manage noise emissions during the night-time (23:00hrs to 07:00 hrs) and to ensure that noise levels attributable to the facility do not exceed the background noise at the nearest receptor by any more than 5dBA while also accounting for any specific tonal noise emissions for which a -5dBA may need to be allowed.

Background noise associated with day-time road traffic, vehicle movements on neighbouring sites, loading shovel reversing beepers and various farm based or current waste shredding activities are taken into account. Attenuation due to the separation distance is also taken into account. The area between the facility and the nearest domestic receptors is open land and the receptors are in an open position. However, the buildings within the site provide significant barriers to sound propagation and the topography immediately surrounding the site includes earth banking with some landscaping works and hedging.

6.0 Projection of the Residual Noise Levels at Sensitive Receptors

6.1 Noise Propagation

The Noise emission from the principal sources shall be subject to physical barriers that will provide an estimated 5-10dBA reduction in the noise propagating from the source toward sensitive receptors.

6.2 Noise Decay

Noise decays with distance from its source. For a simple point source its decay is given by the following equation.

$$\text{SPL2} = \text{SPL1} - 20.\log (d2/d1)$$

where

SPL2 = Sound Pressure Level at target location

SPL1 = Sound Pressure Level measured at distance d1 from the source

d2 = distance from source to target location

(It is approximately a reduction of 6dB per doubling of distances up to around 400m.)

Propagation of noise over the soft field surface provides further attenuation (5dBA) with distance.

Table 2: Projected noise decay at distance away from the source – (Vehicles during the day time)

Metres from Source	1	10	50	100	150	200	250	300
Residual Noise dBA	Up to 90	70.0	56.0	50.0	46.5	44.0	42.0	40.0
Residual Noise dBA Less topographic 5dBA				45.0	41.5	39.0	37.0	35.0

Table 3: Projected noise decay over distances away from the source – (Drier Fan at night-time)

Metres from Source	10	50	100	150	200	250	300
Residual Noise dBA	60	41.0	35.0	31.5	29.0	27.0	25.5

Table 5: Projected noise decay over distances away from the source – (Compost Fan at night-time)

Metres from Source	10	50	100	150	200	250	300
Residual Noise dBA	62.0	38.0	32.0	28.5	26.0	24.0	22.5

Halifax Fans stated free field noise emission rating is 82dBA at 1m. The fan house cladding provides 20-25dB noise attenuation.

Table 6: Projected noise decay over distances away from the source – (Boiler Fans at night-time)

Metres from Source	10	50	100	150	200	250	300
Residual Noise dBA	60.0	41.0	35.0	31.5	29.0	27.0	25.5

Halifax fans stated free field noise emission rating 65dBA at 1m. An allowance of 5dBA is attributed to the enclosure.

6.3 Cumulative Source Noise Propagation and Residual Impact On Sensitive Receptors

The cumulative night-time source noise has been calculated mathematically based on the principal night-time noise sources: The Drier Fan, Boiler Fans and Compost Fan.

The cumulative source noise is predicted to be 63dBA which enables a projection of residual noise at various distances from the source. These are shown in Table 7 and reveals that residual noise assessment level of 35dBA can be achieved at 200 metres from the source.

Table 7: Projection of the Aggregated Source Noise decay over distances away from the source

Metres from Source	10	50	100	150	200	250	300
Residual Noise dBA	63.0	49.0	43.0	39.5	37.0	35.0	33.5
Residual Noise dBA Including topographic mitigation		44.0	38.0	34.5	32.0	30.0	28.5

6.4 Day-time Principal Source Noise Propagation and Residual Impact On Sensitive Receptors

The residual impact of the day-time source noises (principal) has been calculated mathematically based on the theoretical noise source emission of the shredder or crusher. An additional element has been added to account for the noise of materials, the compound effect of the loading shovel and the tonal nature of the noise; therefore the source emission has been shown as 90dB.

Using this cumulative source noise 90dBA enables the projection of residual noise at various distances from the source. These are shown in Table 8 and reveals that residual noise assessment level of <60dBA can be achieved at 180 metres from the source.

This may be compared to the typical noise impact from road traffic (conservatively given as 65dBA), along 'Park Road' adjacent to the nearby dwellings.

Table 8: Projection of the Aggregated Source Noise decay over distances away from the source

Metres from Source	10	50	100	150	180	200	220
Residual Noise dBA	90	76.0	70.0	66.5	64.9	64.0	63.2
Residual Noise dBA Including topographic mitigation		71.0	65.0	61.5	59.9	59.0	58.2

6.5 Conclusions

The cumulative effect of the Principal Night-time Noise Sources may be attenuated by their respective Acoustic Enclosures so that the background levels (night-time) can be maintained at a level of **32 dBA at 200 metres**.

This conforms to the target assessment level for keeping within 35dBA.

7.0 Noise Management Criteria

The following technical and operational measures are to be implemented.

1. The Drier Fan noise shall at all times be attenuated by acoustic enclosure to provide a noise level of no greater than 60dBA (10m) during the night-time.
2. This then relies upon noise decay which is taken as a reduction of 6dB per doubling of distances from the source, together with an allowance of 5dBA for topographical 'barriers' (the buildings etc.) so that the projected noise at the sensitive receptors is <35dB(A)
3. The aim is to maintain residual noise within the margin of 5dBA over background, but also allowing a 5dBA margin that may be attributable to tonal noise.
4. The night-time noise from other sources at the facility will be very low, as most of the equipment shall be idle during the night, and operational components are enclosed. Fan noise is shown to be low, and will be further improved by reducing the fan speed during night-time, when the duty requirement is reduced, or else operating the fan during the day.
5. Day-time noise levels due to vehicles arriving at the site, or when the shredder is operating may mean a short period noise level of 40dBA at the nearest receptor. This is equivalent to the noise of vehicles on the local highway and already evident at the nearest receptors.
6. Day-time noise levels due to activities within the main buildings are attenuated by the building structures.
7. Day-time external noise shall include the shredder operating in the composting area; either on green waste or biomass. Due attention shall be given to the location of the shredder, the arrangement so that compost stockpiles are useful barriers to noise and the machines

shall be operated with the appropriate acoustic enclosures, panels and mufflers in place.

These criteria are developed into the noise management plan as follows at Section 7.

8.0 Noise Management Plan

8.1 Noise Mitigation

1. Machines and equipment shall be assessed before being used at site, to ensure that the noise emission levels from the machine comply with appropriate standards.
2. The Drier Fan shall be acoustically enclosed so that its noise levels do not exceed 60dBA at 10m outside of the generator secondary container enclosure.
3. Machines and equipment shall only be operated when all the appropriate noise mufflers, baffles, acoustic panels and dampening is properly fitted and in operational condition.
4. Vehicle drivers shall be advised and expected to comply with safe and considerate driving techniques when travelling to and from the facility.
5. Any fixed plant or equipment shall be checked for noise emission data and the appropriate measures taken to ensure it can operate within the above criteria.
6. Particular attention shall be paid to the use of loading shovels on site, the specification of these must enable them to operate without undue noise emission.
7. Fan selection shall be made on the basis of minimised noise generation.
8. Reversing beepers shall be of the white noise design.

8.2 Noise Attenuation

1. The noise from the Drier Fan must be attenuated by the use of the acoustic enclosure, and the site manager shall inspect and ensure these are in place during normal operation.
2. Beneficial attenuation of noise shall be derived from building fabric and other structures.
3. Where possible, the solid waste handling operations shall take place within the buildings.
4. Operators of Suction tankers shall ensure that the air exhausts are appropriately muffled.
5. No undue use of vehicle horns or sirens.
6. The avoidance of operating loading shovels (or other vehicles) at excessive RPM.

8.3 Noise Awareness for Operatives and Third Party Visitors

1. Operatives shall undergo an induction awareness training regarding noise. This shall highlight factors in regard to vehicle and equipment operation, including:
 - a.) Operating equipment at the appropriate loading and not overloading machines
 - b) The avoidance of irregular and undue use of machines at high engine RPM.
 - c). Care when lowering loading shovels to avoid banging them on the ground especially concrete surfaces, such as in the reception hall.
 - d). Care when lowering containers to avoid banging them on the ground.
 - e) Care when closing vehicle doors, lids or covers, to avoid undue banging.
 - f) To check beepers are working appropriately with the white noise systems.

8.4 Visiting Vehicle drivers, using lorries, trucks or tractors shall be given a set of site rules and procedures, and these shall include reference to the noise awareness points, listed above, but in particular the avoidance of 'over-revving' of engines and door/ equipment banging.

9.0 Background Noise

An assessment of night time background noise has been undertaken in accordance with BS4142 1997 “Method of rating industrial noise affecting mixed residential and industrial areas”.

For the purposes of developing this Noise Management Plan, noise levels have been taken from available data and the need for acoustic control measures identified.

The data are provided as Appendices.

Appendix 1 – Standard Noise level Data

Table 8: Examples of Noise Levels (Extracted from Internal Guidance for the Regulation of Noise at Waste Management Facilities, JULY 2002, Version 3.0)

dB(A)	Description
0	Threshold of hearing
25-35	Quiet bedroom or still night in the countryside away from traffic
40	Quiet office, refrigerator @ 2m
45-50	Background noise levels in residential urban areas
55	Day time, busy roadway @ 0.5 km
70	Vacuum Cleaner @ 3m. Busy restaurant. Lorry arriving at site
70-80	General Transfer station activities skip lorry tipping waste
75-85	Front end loader handling waste / loading vehicles @ 10m
85	First action level for Noise at Work Act Very busy pub, voice has to be raised to be heard
85	Heavy goods vehicle passing pavement. Dump trucks @ 10m
100	Pneumatic drill @ 5m

The average car produces 62dB driving at 30 mph. At 50 mph, a car produces noise emissions of ~70dB.

Appendix 2 – Operation Specific Noise level Data

Table 9 Noise measurements for the Industrial Equipment at a Reference Composting Site Huntington

1.	At 5m distance from a High Speed Shredder	84-85 dBA
2.	At 20m distance from a High Speed Shredder	67-69 dBA
3.	At 30m distance from a High Speed Shredder	64-65 dBA
4.	At 50m distance from a High Speed Shredder	48-50 dBA
5.	Adjacent (1m) to a McClosky Compost Screener (outside)	78 dBA
6.	At 10m distant from a McClosky Screener (outside)	71 dBA
7.	At 20m distant from a McClosky Screener (outside)	66 dBA
8.	At 50m distant from a McClosky Screener (outside)	48-50 dBA

It can clearly be seen that the effect of the distance serves to attenuate the noise produced by the shredder and other equipment. This is in accordance with the mathematical decay of noise as it radiates from the source in an open field.