



**Starling
Environmental
Limited**

67 Chorley Old Road, Bolton, Greater Manchester, BL1 3AJ

www: starlingenvironmental.co.uk

Tel: 07989 73122

**DUST EMISSIONS MANAGEMENT PLAN
for
CLAYTON HALL WASTE TRANSFER STATION
CHORLEY, LANCASHIRE**

**Report No 110/2
December 2023**

For



DOCUMENT CONTROL

DOCUMENT TITLE	Dust Emissions Management Plan
REPORT NO	110/2
DATE ISSUED	13/12/2023
PREPARED BY	C Gettinby
STATUS	Final Version
REVISIONS	

CONTENTS

1.	INTRODUCTION	4
1.1	Report Context.....	4
1.2	Site Location and Surrounding Area	5
1.3	Background Air Quality	5
1.4	Climate Details.....	6
2.	ASSESSMENT OF RECEPTORS.....	8
2.1	Receptors	8
2.2	Receptor Sensitivity Assessment.....	8
3.	SITE OPERATIONS	12
3.1	Waste Deliveries.....	12
3.2	Overview of Waste Processing and Emission Controls	12
3.3	Mobile Plant and Equipment.....	13
4.	DUST AND PARTICULATE MANAGEMENT	14
4.1	Responsibility for Implementation of Plan	14
4.2	Sources and Control of Dust/ Particulates	14
4.3	Monitoring and Inspections	17
5.	CONTINGENCY AND ACTION PLAN	18
6.	REPORTING AND COMPLAINTS PROCEDURES	19
6.1	Reporting of Complaints	19
6.2	Management Responsibilities	19
7.	SUMMARY AND CONCLUSIONS	20

APPENDICES

- Appendix A - Drawings
- Appendix B - Assessment Method

DRAWINGS

- Drawing No 110/01 – Site Location Plan
- Drawing No 110/02 – Site Layout Plan
- Drawing No 110/03 – Receptors

1. INTRODUCTION

1.1 Report Context

- 1.1.1 Starling Environmental Limited (SEL) has been commissioned by Quercia Limited (the operator) to prepare a Dust Emissions Management Plan (DEMP) to accompany an environmental permit variation application for the waste transfer station located at Clayton Hall, Dawson Lane, Whittle-le-Woods, Chorley, PR6 7DT.
- 1.1.2 The site is regulated under environmental permit EPR/AP389CJ which allows acceptance of a wide range of non-hazardous waste for treatment.
- 1.1.3 The Environment Agency RPS 274 issued in May 2023 requires operators to vary their permit to add hazardous mirror entry codes for the '19 10' waste code (ie waste from shredding of metal-containing waste). The permit variation is to add an installation to the site to enable treatment of >10 tn/day of hazardous metal-shredding residues by physico-chemical treatment.
- 1.1.4 Waste treatment at the site consists of mechanical treatment using typical MRF plant including shredding, trommelling, eddy currents/magnets for metal removal and density separation. All treatment is carried out within a large building that has an extraction system with associated dust filters.
- 1.1.5 The treatment and movement of waste, storage of wastes, and associated HGV movements have the potential to generate dust emissions which may pose a risk of dust soiling impacts, ecological impacts or risks to human health. HGVs also have the potential to generate exhaust emissions which may pose a health risk to surrounding receptors.
- 1.1.6 The aim of the DEMP is to identify the potential risks of fugitive dust emissions associated with treatment of hazardous metal shredded residues, and associated with dust produced from other waste treatment processes conducted at the site. Impacts to identified receptors are assessed and the required mitigation measures for the management of any dust or other emissions arising are provided.
- 1.1.7 The DEMP is part of the Environmental Management System (EMS) for the site and is for use by management and site operators. A copy will be located within the site office.
- 1.1.8 The DEMP has been prepared using the following guidance:
- Environment Agency Risk Assessment for Environmental Permits¹
 - Institute of Air Quality Management (IAQM)²

¹ <https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit>

- Control & Monitor Emissions for your Environmental Permit³

1.1.9 All drawings referenced are contained in Appendix A.

1.2 Site Location and Surrounding Area

1.2.1 The site is located off Dawson Lane some 3 km to the east of Leyland and 3 km to the north of Chorley town centre, Lancashire. The approximate National Grid Reference for the centre of the site is SD 5685 2180. The site location is shown on Drawing No 110/01.

1.2.2 The site is within the permitted area of the Clayton Hall Landfill Site, a non-hazardous landfill also operated by Quercia, under permit EPR/BV1364.

1.2.3 To the north of the transfer station is the operational landfill, and to the south the vegetated overburden mound of the former sand quarry. The site, and the landfill infrastructure are situated between those two areas of higher ground, and a public footpath runs to the rear (south) of the site.

1.2.4 The closest residential areas are Clayton-Le-Woods approximately 430 m to the north-west and 540 m to the north-east and Buckshaw Village approximately 635 m to the south.

1.3 Background Air Quality

1.3.1 Reference to the interactive DEFRA Air Quality Management Area (AQMA) mapping tool⁴ identifies that the site is not located within an AQMA.

1.3.2 The UK Ambient Air Quality Interactive Map⁵ shows background concentrations of pollutants for the area and is presented in Table 1 along with air quality standards. Background concentrations of all pollutants are at or below the limit values for protection of human health.

Pollutant	2022 Background concentration µg/m ³	Air Quality Standard Limit value / objective µg/m ³
Nitrogen Dioxide (NO ₂)	11 - 20	40*
Fine Particulate Matter (PM ₁₀)	< 13	40*
Very Fine Particulate Matter (PM _{2.5})	9 - 10	10**

Table 1: Background Air Quality for 2022

Notes

* The Air Quality Standards Regulations 2010 (amended in 2016)

** The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023

² IAQM Guidance on the assessment of dust from demolition and construction, January 2014. Whilst this guidance is specifically for 'construction dust', in the absence of separate guidance for dust from waste or mineral sites, the IAQM guidance can be used as a starting point for waste dust assessment with appropriate modification or minor adjustments.

³ <https://www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit>

⁴ <https://uk-air.defra.gov.uk/aqma/maps>

⁵ Data obtained using interactive background maps <https://uk-air.defra.gov.uk/data/gis-mapping>

1.4 Climate Details

1.4.1 Figure 1 shows a wind rose for data collected at Blackpool Airport which is the closest recording station at approximately 26 km to the north-west.

1.4.2 The wind rose shows that the prevailing wind direction is from the west with wind speeds most frequently between 10 – 20 knots, ie moderate to fresh breeze on the Beaufort scale. The strongest winds typically come from the west-southwest and are recorded at speeds greater than 20 knots, ie strong breeze and above. Winds from the east are typically lower in strength and most frequently recorded at speeds less than 15 knots.

1.4.3 With reference to the data it is considered that wind direction at Clayton Hall will be variable but with a prevalence towards the north-east, east and south-east.

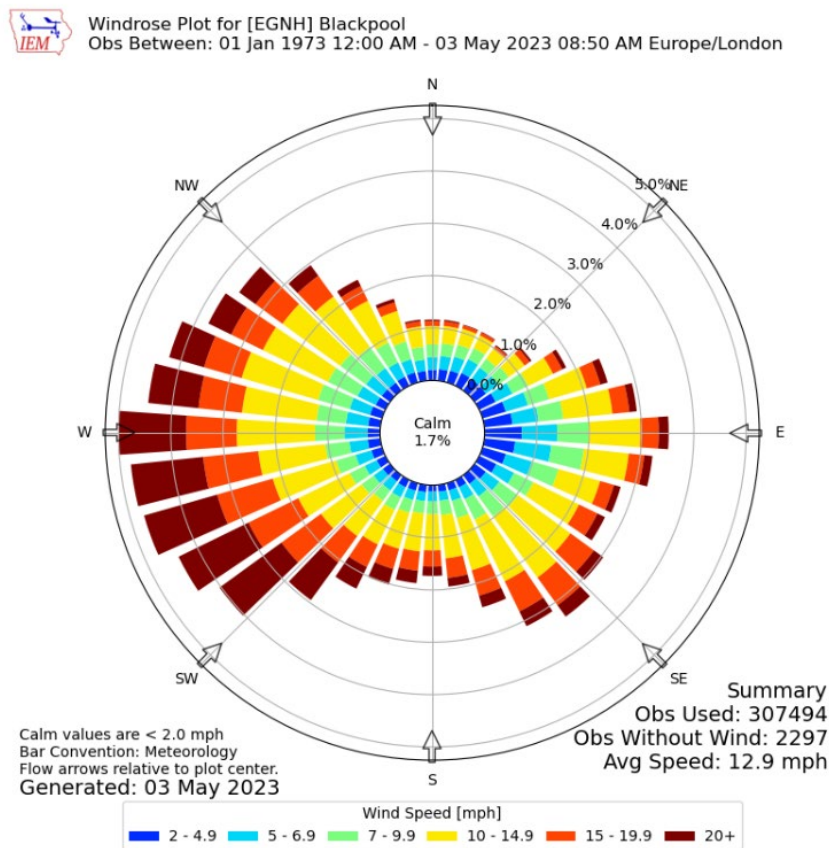


Figure 1: Wind Rose

Rainfall

- 1.4.4 Reference has been made to Met Office data for Myerscough available on the met office website⁶, the nearest climate recording station to the site at approximately 18 km due North. Total average annual rainfall during the period 1991 to 2020 was 1058 mm. The number of days of rainfall greater than or equal to 1 mm was 157 days on average each year.

⁶ <https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-climate-averages/gcw435f21>

2. ASSESSMENT OF RECEPTORS

2.1 Receptors

2.1.1 EA Guidance requires that receptors within 1 km of the site that may be impacted by dust are identified, and that a further assessment is made to identify which of these are sensitive. Drawing No 110/03 shows the site and surrounding area setting.

2.1.2 Table 2 lists the receptors located within 1 km of the site and their distance and direction from the site, along with the reference as per Drawing No 110/03.

2.2 Receptor Sensitivity Assessment

2.2.1 The sensitivity of each receptor to dust soiling effects, human health effects and the ecological effects of dust deposition has been assessed using the IAQM guidance³.

2.2.2 The sensitivity assessment follows the IAQM guidance and is based on number of receptors and distance from the source. For example, residential properties are considered to be highly sensitive to dust however the sensitivity reduces with distance from site. The assessment method is contained in Appendix B.

2.2.3 The sensitivity of surrounding receptors to human health effects has been assessed based on 2022 background annual mean PM₁₀ concentration at <13.0 µg/m³ which is well below the annual mean Air Quality Objective of 40 µg/m³.

Report No 110/2 – December 2023
Clayton Hall MRF: Dust Emissions Management Plan

Ref	Receptor	Direction from	Approximate Distance from site boundary (m) to closest point	No of Receptors	Receptor Sensitivity		
					Dust Soiling	Human Health Impacts	Ecological Impacts
Residential							
1	Clayton Hall Farm/Bungalow	NW	270	1-10	Low	Low	-
	Oak House	S	336	1-10	Low	Low	
	Residences in Clayton-le-Woods (Spring Meadow)	NW	420	>100	Low	Low	-
	Residences in Clayton-le-Woods (Juniper Croft)	NE	540	>100	Low	Low	
	Residences in Buckshaw Village (Anderton Crescent)	S	635	>100	Low	Low	
	Residences in Whittle-le-Woods (Kem Mill Lane)	E	925	>100	Low	Low	
Industrial/Commercial							
2	Commercial properties in Buckshaw Village	SSW	760	>100	Low	Low	-
	Matrix Industrial Park	SW	805	>100	Low	Low	-
	Commercial properties in Clayton-le-Woods	NW	820	>100	Low	Low	-
Major Roads/ Transport Links							
3	Dawson Lane (B5248)	S	350	-	Low	Low	-
	Preston Road (A6)	E	960	-	Low	Low	-
Public Rights of Way							
4	Public Footpaths	Surrounding	Adjacent – 1 Km	-	Low	Low	-
Amenity/Recreation							
5	Leyland Golf Course	W	190	10-100	Low	Low	-
	Cuerdon Valley Park	NE	240	>100	Low	Low	Low
	Football Ground – Whittle-Le-Woods	SE	360	10-100	Low	Low	-
	Cricket Ground	ESE	775	10-100	Low	Low	-
Watercourses							
6	Surface Water Ditch	E	3	-	-	-	Low
	Brynning Brook	W	140	-	-	-	Low
	River Lostock	E	360	-	-	-	Low
Ecological Areas/Designated Sites							
7	Priority Habitat Deciduous Woodland	Surrounding	Adjacent – 750	-	-	-	Low
Schools/Colleges/Nurseries							
8	Lancaster Lane Primary School	WNW	910	>100	Low	Low	-
	Whittle-Le-Woods Primary School	E	920	>100	Low	Low	-
	Gelston Manor Day Nursery	S	570	10-100	Low	Low	-
	Clayton-Le-Woods Primary School	N	900	>100	Low	Low	-
Care Facilities/ Hospitals							
9	Lisieux Hall Residential Nursing Home	SE	290	>100	Low	Low	-
Farmland							
10	Farmland	E & SW	Adjacent - 225	-	Low	Low	-

Table 2: Potential Receptors Within 1 km

Notes: Receptor sensitivity has been determined using the IAQM guidance 'Define the Sensitivity of the Area'.

Residential Receptors

- 2.2.4 The closest residential receptors are Clayton Hall Farm/Bungalow approximately 270 m to the north-west and Oak House approximately 336 m to the south. The closest suburb is Clayton-le-Woods located some 420 m to the north-west and 540 m to the north-east. Whilst residential receptors are classified as 'high sensitivity' receptors, as they are > 100 m from source, all these properties are assessed as having low sensitivity to both dust soiling and human health impacts.
- 2.2.5 In addition, residences to the north in Clayton-le-Woods and in Clayton Hall Farm to the north-west are screened by the peripheral mounding of the landfill. Occupants in Oak House to the south are screened from the MRF building by the quarry overburden mound.

Commercial/Industrial Receptors

- 2.2.6 The closest industrial receptor is the Matrix Industrial Park which is approximately 805 m to the south-west.
- 2.2.7 There are small commercial premises in the surrounding Buckshaw Village, approximately 760 m to the south, and in Clayton-Le-Woods approximately 820 m to the north-west.
- 2.2.8 The IAQM consider places of work as being 'medium sensitivity' receptors to both dust soiling and human health effects. However, due to the distance from the site these places of work are assessed as having low sensitivity to dust soiling and low sensitivity to human health impact.

Major Roads/Transport Links

- 2.2.9 Receptors where human exposure is transient (eg. roads) are considered as having low sensitivity to both dust soiling and human health impacts.

Public Rights of Way

- 2.2.10 There are a number of public footpaths in the area, one (FP11) is adjacent to the site and runs parallel to the southern boundary. In accordance with IAQM, receptors where human exposure is transient (eg. footpaths and roads) are considered as having low sensitivity to both dust soiling and human health impacts.

Water Features

- 2.2.11 In accordance with the IAQM guidance, the identified water features in the area are classified as having low sensitivity to ecological effects from dust deposition.

Amenity/Recreation

- 2.2.12 Leyland Golf Course is approximately 190 m to the west of the site, and Cuerdon Valley Park is approximately 240 m to the north-east. These recreational areas are considered as having low sensitivity to both dust soiling and human health impacts due to the transient nature of exposure.

Hospitals/Care Homes

- 2.2.13 Hospitals or care homes are classified as 'high sensitivity' sensitivity to both dust soiling and human health impacts. There are no general hospitals within 1 km of the site. Lisieux Hall, a residential nursing home is located approximately 290 m to the south-east, and this is partly screened by rising ground and trees.
- 2.2.14 Due to the distance from source, this 'high sensitivity' receptor is assessed as having low sensitivity to both dust soiling and human health impacts.

Designated Sites/Ecological Receptors

- 2.2.15 There are no local nature reserves or nationally designated sites within 1 km of the site. There are patches of priority habitat deciduous woodland around the site, the closest is adjacent to the site to the north and south. Priority habitat woodland are not nationally designated sites, and as such they are classified by the IAQM as having low sensitivity to ecological effects from dust deposition.

Schools/Colleges

- 2.2.16 There are three identified primary schools and one nursery within 1 km of the site; the closest is the Gelston Manor Day Nursery located 570 m south in Buckshaw Village. Due to their distance from site these receptors are assessed as having low sensitivity to both dust soiling and human health effects.

3. SITE OPERATIONS

3.1 Waste Deliveries

3.1.1 HGVs will enter the site via the gated entrance. Haulage operators are instructed that all loads should be covered prior to entering and leaving site.

3.2 Overview of Waste Processing and Emission Controls

3.2.1 The site operates as a MRF for the treatment of household, commercial and industrial waste. The treatment process consists of mechanical treatment using a typical MRF plant including shredding, trommelling, metals recovery, density separation.

3.2.2 Recyclable fractions are recovered for onward shipping to third party recyclers. Residual combustible waste which is not suitable for recycling is shredded to produce RDF. Non-combustible material which cannot be recovered may be disposed of in the landfill, subject to landfill waste acceptance procedures.

3.2.3 All treatment is carried out within the large processing building. Separated waste types are predominantly stored within the building. The only waste processed under the transfer station permit that will be stored outside in the yard is baled SRF.

3.2.4 The processing building benefits from an extraction system with three fabric dust filters to reduce dust emissions from the mechanical treatment of waste. Monitoring will be conducted every 6 months to ensure the extraction system meets the BAT emission limit of 2-5 mg/Nm³.

3.2.5 The site is surfaced with concrete so the deposition of mud from delivery vehicles is not considered to be a significant issue.

3.2.6 Control of exhaust emissions from plant will be predominantly through use of high tier emissions standard⁷ plant/machinery and regular inspection and maintenance of machinery.

3.2.7 Dust/particulate emission mitigation and control will primarily be through avoidance and containment as follows:

Avoidance:

- Concrete access road and yard;
- Speed limit restrictions;

⁷ Emissions Standards are set out in the 'Non-Road Mobile Machinery (Emission of Gaseous and Particulate Pollutants) Regulations 1999' as amended.

- Movement of material at the site will be conducted by trained operators who are aware of the requirement for careful movement and avoidance of double handling;
- All HGVs transporting material into or out of the site will be covered;
- Daily inspections of site road and sweeping when required. Removal of mud from vehicles;
- Minimising drop heights during tipping and movement of wastes inside the building; and
- A road sweeper will be deployed if the access road is becoming muddy or dusty.

Containment:

- All waste processing is carried out inside the building which provides containment of emissions.
- An extraction system is in place in the processing building that has three dust fabric filters which will remove dust in the air prior to release to atmosphere.
- MCERTS monitoring of the extraction points will be carried out every six months as per the minimum BAT requirements.

3.3 Mobile Plant and Equipment

- 3.3.1 IAQM guidance states that mobile plant are *'unlikely to make a significant impact on local air quality'*, and would not need to be assessed as part of an Air Quality Assessment.
- 3.3.2 Mobile plant (eg loader, shovel) will be used at the site. The operator will ensure all mobile plant used at the site will be predominantly high tier⁷ emissions ratings plant.
- 3.3.3 Regular servicing of plant, vehicles and machinery will be carried out according to applicable legislation. If replacement of plant/machine is required then the highest emission standard possible available will be purchased.
- 3.3.4 Daily checks on vehicles and plant are carried out by operatives before use. Staff will be trained on the use of mobile plant to reduce emissions where possible, including anti-idling.
- 3.3.5 All drivers of mobile plant and operators of stationary plant will be trained in the correct and safe use of the relevant machinery to ensure that the operating techniques are undertaken in line with the guidance within the manufacturers' instructions.

4. DUST AND PARTICULATE MANAGEMENT

4.1 Responsibility for Implementation of Plan

4.1.1 The Appointed Manager (AM) has overall responsibility for the control of the waste operations at the site and is responsible for ensuring that the procedures in the DEMP are followed. The AM will:

- Ensure that the DEMP is effectively communicated, and that staff that may be competent to undertake their roles;
- Ensure that operations and management procedures outlined in this document are implemented and complied with;
- Ensure that the DEMP is reviewed annually, or following:
 - Permit variation
 - Accident, complaint or breach of permit
 - Any major changes to site operations
- Completion and storage of all required records for the DEMP.

4.1.2 The AM may delegate some mitigation tasks to site representatives (eg monitoring of the filter, training of other staff etc).

4.2 Sources and Control of Dust/ Particulates

4.2.1 Potential emissions that may be generated from waste operations at the site include the following:

- Dust from HGV movements,
- Dust from tipping and movement of imported wastes;
- Dust from mechanical treatment of wastes inside the building;
- Dust from stockpiled wastes;
- Exhaust emissions from plant;
- Exhaust emissions from HGV and mobile plant movements
- Extracted air post dust filtration

4.2.3 The deposition of mud from delivery vehicles is not considered to be a significant issue as traffic areas are concreted. If HGVs arrive with excessive mud, it will be removed.

- 4.2.4 Tables 3 and 4 below detail the sources of emissions at the site and include the pathways to identified receptors. Proposed mitigation and control measures are provided for each source-pathway-receptor linkage, and an assessment of overall risk is provided for each emission source.

Report No 110/2 – December 2023
Clayton Hall MRF: Dust Emissions Management Plan

Source	Pathway	Receptor	Type of Impact	Mitigation and Control Measures	Overall Risk
Dust /particulates: Generated from waste tipping, processing, movement and storage of waste; extraction system	Atmospheric dispersion (wind-blown dust)	Local residents Pedestrian users of footpaths, golf course Priority habitat woodland Brynning Brook/River Lostock	Dust deposition soiling surfaces Visible dust plumes Elevated PM ₁₀ and associated health impacts Ecological impacts	Avoidance: Minimise drop heights during tipping and movement of wastes. Clean up any spillages that occur during material loading into vehicles. Careful placement of material into processing plant, into vehicles or stockpiles by trained operatives. Containment: Processing carried out inside a building. Building air is extracted via dust filters. Management Control (EMS): Visual dust monitoring during daily checks. Monitoring will be carried out to assess the effectiveness of abatement and that BAT emission limits are being adhered to. Maintenance of dust filters and extraction system	Low

Table 3: Assessment of Risks from Dust/Particulates

Source	Pathway	Receptor	Type of Impact	Mitigation and Control Measures	Overall Risk
Gaseous pollutants: HGV and mobile plant exhaust emissions	Atmospheric dispersion	Local residents Pedestrian users of footpaths, golf course	Increase in airborne particles and in nitrogen dioxide, sulphur dioxide and associated human health impacts	Avoidance/ Containment: Regulatory controls and best practice measures are in place. Management Control (EMS): Ensure all vehicles switch off engines - no idling vehicles. Regular inspection and maintenance. Use of higher tier emission standard machinery/plant where available.	Very Low

Table 4: Assessment of Risks from Gaseous Pollutants

4.3 Monitoring and Inspections

- 4.3.1 The AM or delegated representative will undertake daily on and offsite inspections for dust soiling of surfaces to monitor effectiveness of the DEMP. Inspection results will be recorded in the site diary, and a record kept detailing weather conditions.
- 4.3.2 Quantitative monitoring of dust will be undertaken every 6 months. This will include MCERTS analysis of the extracted air to ensure that the 2-5 mg/Nm³ emission limit is not being breached.

5. CONTINGENCY AND ACTION PLAN

- 5.1 In the event that dust/particulates or excessive vehicle emissions are perceived as a concern following monitoring or as the result of a complaint, the source will be investigated by the AM.
- 5.2 When investigating any such report, the following factors will be considered:
- Location of the source relative to receptors
 - Prevailing wind directions on site
 - Dust/particulates and vehicle emissions from external source
- 5.3 Remedial actions will be undertaken on an escalating basis and include the following:
- Check the pressure on the extraction system
 - Check if the dust filter units require emptying
 - Simple repairs or modifications to plant or machinery or switching off equipment
 - Deployment of road sweeper
- 5.4 The AM with the support of a senior manager will co-ordinate more complex responses, which could include: review of customers at the pre-acceptance stage if certain hauliers have excessive exhaust emissions; implementing a local community engagement exercise; or liaising with regulators.
- 5.5 Any incidents, their outcomes and details of any remedial actions taken related to emissions will be recorded in the site diary.
- 5.6 The AM will ensure that the site is equipped with contingency provisions for replacement plant and parts relating to emissions management equipment (eg dust filters). The aim will be to repair equipment within 24 hours of breakdown.

6. REPORTING AND COMPLAINTS PROCEDURES

6.1 Reporting of Complaints

6.1.1 Any complaints relating to the site will be recorded in the site diary. This includes complaints relating to dust or air quality.

6.1.2 All complaints received will be recorded and investigated by the AM. A response will be reported back to the complainant.

6.1.3 A record of incidents, accidents or non-conformances will be kept including the following information:

- Date and time of incident
- What happened
- What caused it
- Details of any contamination
- Who was involved
- What action was taken
- Were external agencies involved
- Any changes that have been made to the procedures/ EMS to ensure the incident does not reoccur

6.2 Management Responsibilities

6.2.1 The responsibility of handling complaints is with the AM with support from a senior manager. Incidents are investigated by the AM whereby rectifying action is determined.

7. SUMMARY AND CONCLUSIONS

- 7.1 It is proposed to add an installation activity to allow treatment of more than 10 tonnes per day of hazardous waste, specifically hazardous metal shredder residues which are currently accepted under the non-hazardous mirror entry codes. The installation activity will operate alongside the existing waste operation (MRF) and no changes are proposed to the waste operation.
- 7.2 The treatment and movement of hazardous and non-hazardous waste, storage of wastes, and associated HGV movements have the potential to generate dust emissions which may pose a risk of dust soiling impacts, ecological impacts or risks to human health.
- 7.3 The sensitivity of receptors to adverse impacts from dust has been assessed in accordance with IAQM guidance. All of the identified receptors in the surrounding area were assessed as having low sensitivity to both dust soiling and human health impacts due to their distance from dust sources at the site.
- 7.4 Processing of waste is only undertaken inside the processing building which benefits from an extraction system whereby three fabric dust filters remove dust particles to within the building which are monitored to ensure that the 2-5 mg/Nm³ emission limit is not being breached.
- 7.5 In addition, the site and access road are concreted so deposition of mud from vehicles will not be an additional source of dust. EMS measures are also in place including regular inspections of off-site roads, limiting vehicle speeds anti-idling policy and ensuring HGVs are covered on entering and exiting the site. The overall risk of emissions following mitigation measures has been determined as low.
- 7.6 The DEMP will be reviewed annually as part of the annual review of the EMS, following any complaints received relating to emissions or following relevant variations to the waste operations.

APPENDIX A

Drawings



ORDNANCE SURVEY © CROWN COPYRIGHT 2023. ALL RIGHTS RESERVED. LICENCE NUMBER 100022432.

LEGEND — SITE LOCATION

STARLING ENVIRONMENTAL LIMITED
 67 Chorley Old Road, Bolton,
 Greater Manchester, BL1 3AJ
 www: starlingenvironmental.co.uk
 email: claire@starlingenvironmental.co.uk
 Tel: 07989 673122

CLIENT QUERCIA LIMITED	DRAWN BY. M.Y.B	APPROVED BY. C.G
JOB TITLE. CLAYTON HALL MRF	DATE. 04/12/23	DRAWING No. 110/01
DRAWING TITLE. SITE LOCATION PLAN	SCALE @ A4. 1:50,000	



- NOTES
- TRANSFER STATION PERMIT BOUNDARY
 - SITE BOUNDARY
 - S1 SUMP/ INTERCEPTOR (EMISSION POINT TO SEWER)
 - SS SUB STATIONS
 - DRAINAGE FLOW DIRECTION
 - A1 DUST FILTER (EMISSION POINT TO AIR)

STARLING ENVIRONMENTAL LIMITED
 67 Chorley Old Road, Bolton, Greater Manchester, BL1 3AJ
 www: starlingenvironmental.co.uk
 email: claire@starlingenvironmental.co.uk
 Tel: 07989 673122

CLIENT:

QUERCIA LIMITED

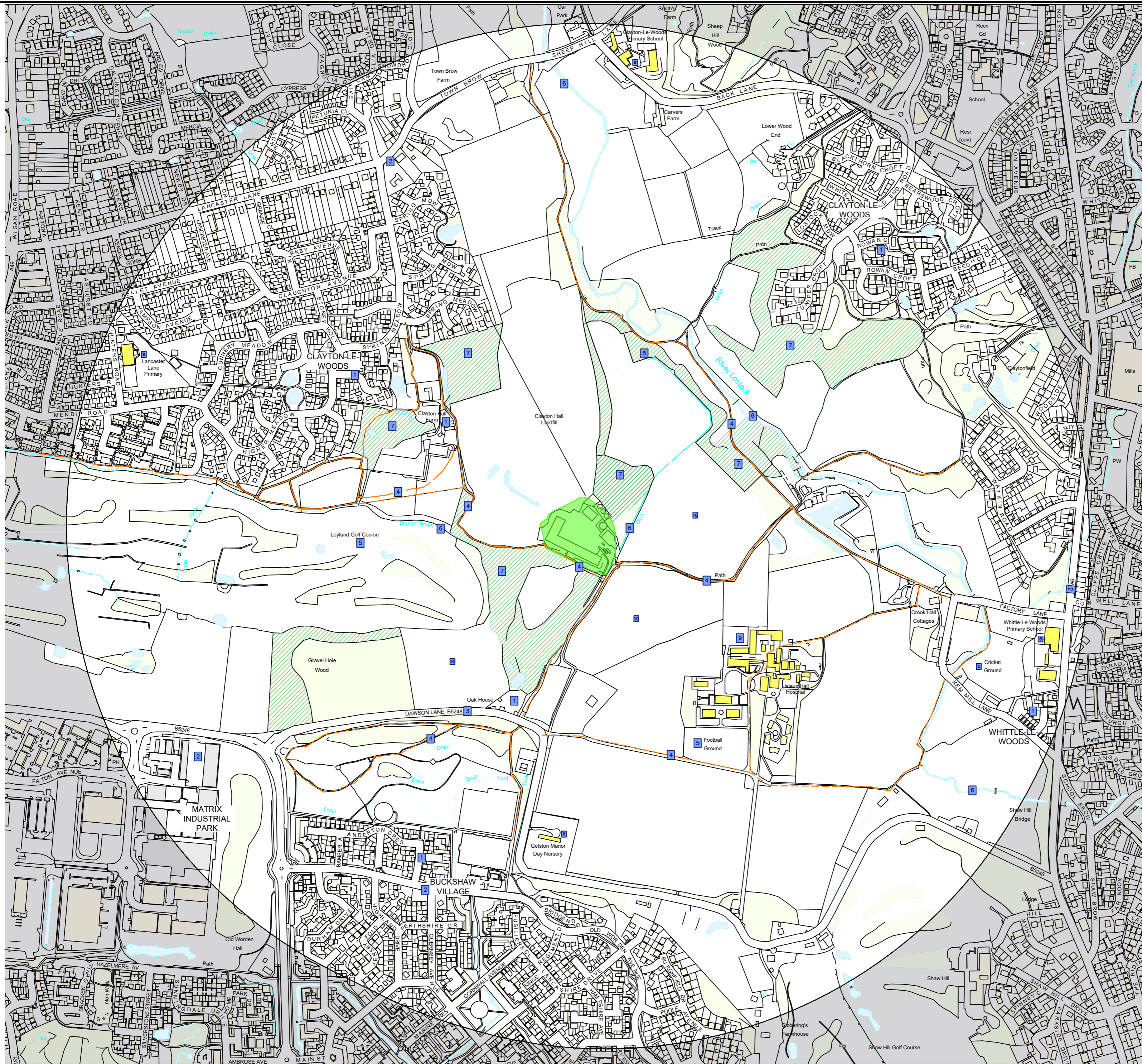
JOB TITLE:

CLAYTON HALL MRF

DRAWING TITLE:

SITE LAYOUT PLAN

DRAWN BY: M.Y.B	APPROVED BY: C.G	DRAWING No. 110/02
DATE: 04/12/23	SCALE: A2 1:500	



- LEGEND**
- PERMIT AREA
 - PRIORITY HABITAT WOODLAND
 - RESIDENTIAL
 - SCHOOL/CARE FACILITY/HOSPITAL
 - INDUSTRIAL/COMMERCIAL
 - PUBLIC RIGHT OF WAY
 - 1 KM RECEPTOR BOUNDARY
 - 1 RECEPTOR REFERENCE


 PREDOMINANT WIND DIRECTION IS FROM THE WEST

REV.	DESCRIPTION	DATE	BY

STARLING ENVIRONMENTAL LIMITED
 67 Chorley Old Road, Bolton,
 Greater Manchester, BL1 3AJ
 www: starlingenvironmental.co.uk
 email: claire@starlingenvironmental.co.uk
 Tel: 07989 673122

CLIENT:
QUERCIA LIMITED

JOB TITLE:
CLAYTON HALL MRF

DRAWING TITLE:
FIRE LAYOUT PLAN

DRAWN BY: M.Y.B	APPROVED BY: C.G	DRAWING NO. 110/03
DATE: 04/12/23	SCALE: A2: 1:4000	

APPENDIX B

Assessment Method

1 Assessment Method

1.1 The assessment proceeds stepwise as illustrated in Figure 2 below, reproduced from the IAQM Guidance on the assessment of dust from demolition and construction.

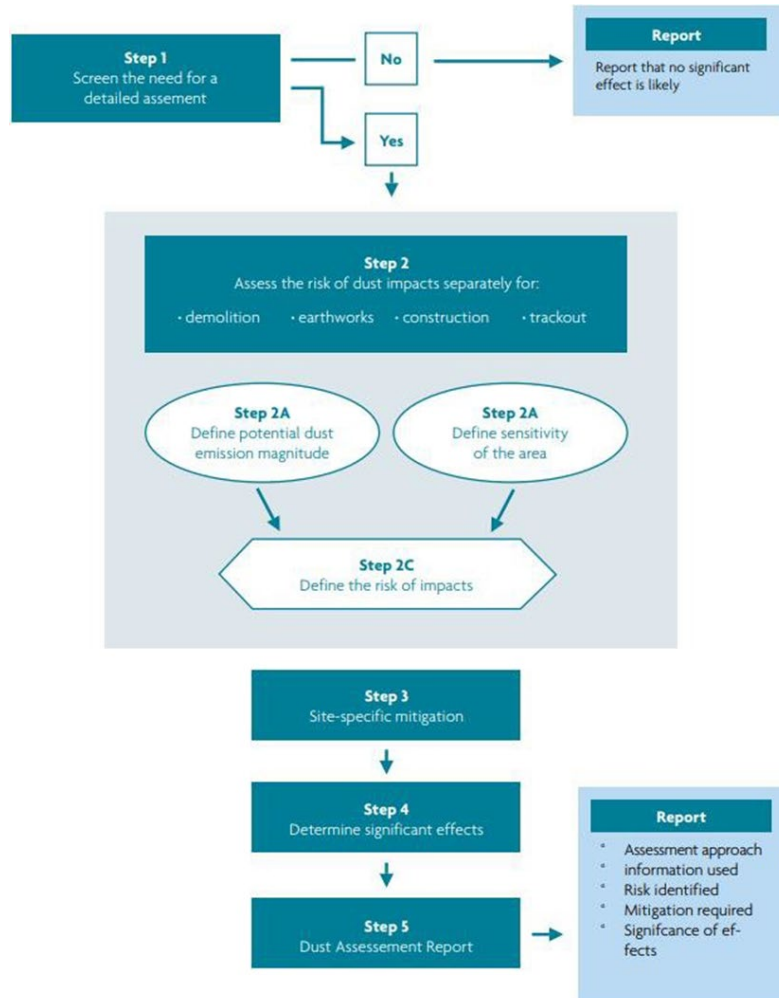


Figure A1: Assessment Procedure

2 Step 1: Screen the Need for a Detailed Assessment

2.1 An assessment is normally required when there is a human receptor within 350 m of the boundary of the site and 50 m of the route used by construction vehicles. This site fits within this location as it is surrounded by commercial operators which are considered human receptors and so will require an assessment.

3 Step 2: Assess the Risk of Dust Impacts

3.1 This step is split into three sections as follows:

- 2A -define the potential dust emission magnitude;
- 2B - define the sensitivity of the area; and
- 2C - define the risk of impacts.

3.2 In Step 2A, each of the dust-generating activities is examined and a dust emission magnitude determined depending on the scale and nature of the works based on the criteria shown in Table 3 below.

Dust emission magnitude		
Small	Medium	Large
Demolition		
<ul style="list-style-type: none"> • total building volume <20,000m³ • construction material with low potential for dust release (e.g. metal cladding or timber) • demolition activities <10m above ground • demolition during wetter months 	<ul style="list-style-type: none"> • total building volume 20,000 - 50,000m³ • potentially dusty construction material • demolition activities 10 - 20m above ground level 	<ul style="list-style-type: none"> • total building volume >50,000m³ • potentially dusty construction material (e.g. concrete) • on-site crushing and screening • demolition activities >20m above ground level
Earthworks		
<ul style="list-style-type: none"> • total site area <2,500m² • soil type with large grain size (e.g. sand) • <5 heavy earth moving vehicles active at any one time • formation of bunds <4m in height • total material moved <10,000 tonnes • earthworks during wetter months 	<ul style="list-style-type: none"> • total site area 2,500m² - 10,000m² • moderately dusty soil type (e.g. silt) • 5 – 10 heavy earth moving vehicles active at any one time • formation of bunds 4 – 8m in height • total material moved 20,000 - 100,000 tonnes 	<ul style="list-style-type: none"> • total site area >10,000m² • potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size) • >10 heavy earth moving vehicles active at any one time • formation of bunds >8m in height • total material moved >100,000 tonnes

Table A1: Dust Emission Magnitude (continued over)

Construction		
<ul style="list-style-type: none"> total building volume <25,000m³ construction material with low potential for dust release (e.g. metal cladding or timber) 	<ul style="list-style-type: none"> total building volume 25,000 - 100,000m³ potentially dusty construction material (e.g. concrete) on-site concrete batching 	<ul style="list-style-type: none"> total building volume >100,000m³ on-site concrete batching sandblasting
Trackout		
<ul style="list-style-type: none"> <10 HDV (>3.5t) outward movements in any one day surface material with low potential for dust release <ul style="list-style-type: none"> unpaved road length <50m 	<ul style="list-style-type: none"> 10 – 50 HDV (>3.5t) outward movements in any one day moderately dusty surface material (e.g. high clay content) <ul style="list-style-type: none"> unpaved road length 50 – 100m; 	<ul style="list-style-type: none"> >50 HDV (>3.5t) outward movements in any one day potentially dusty surface material (e.g. high clay content) <ul style="list-style-type: none"> unpaved road length >100m

Table A1 continued: Dust Emission Magnitude

3.7 Step 2B requires the sensitivity of the surrounding area to be determined for each activity, based on the proximity and number of receptors, their sensitivity to dust, the local PM₁₀ background concentrations and any other site-specific factors. Tables A2 to A4 show the criteria for defining the sensitivity of the area to different dust effects.

Receptor sensitivity	Number of receptors	Distance from the source (m)			
		< 20	< 50	< 100	< 350
High	> 100	High	High	Medium	Low
	10 – 100	High	Medium	Low	Low
	< 10	Medium	Low	Low	Low
Medium	> 1	Medium	Low	Low	Low
Low	> 1	Low	Low	Low	Low

Table A2: Sensitivity of the area to dust soiling effects

Background PM ₁₀ concentrations (annual mean)	Number of receptors	Distance from the source (m)				
		< 20	< 50	< 100	< 200	< 350
High receptor sensitivity						
> 32µg/m ³	> 100	High	High	High	Medium	Low
	10 – 100		Medium	Low		
	< 10		Medium	Low		
28 – 32µg/m ³	> 100	High	High	Medium	Low	Low
	10 – 100		Medium	Low		
	< 10		Medium	Low		
24 – 28µg/m ³	> 100	High	Medium	Low	Low	Low
	10 – 100		Medium			
	< 10	Medium	Low			
< 24µg/m ³	> 100	Medium	Low	Low	Low	Low
	10 – 100	Low				
	< 10	Low				
Medium receptor sensitivity						
> 32µg/m ³	> 10	High	Medium	Low	Low	Low
	< 10	Medium	Low			
28 – 32µg/m ³	> 10	Medium	Low	Low	Low	Low
	< 10	Low				
24 – 28µg/m ³	> 10	Low	Low	Low	Low	Low
	< 10					
< 24µg/m ³	> 10	Low	Low	Low	Low	Low
	< 10					
Low receptor sensitivity						
–	> 1	Low	Low	Low	Low	Low

Table A3: Sensitivity of the area to human health impacts

Receptor sensitivity	Distance from the source (m)	
	< 20	< 50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Table A4: Sensitivity of the area for ecological impacts

3.8

The overall risk of the impacts for each activity is then determined (step 2C) prior to the application of any mitigation measures and an overall risk for the site derived.

Sensitivity of area	Dust emission magnitude		
	Large	Medium	Small
Demolition			
High	High risk site	Medium risk site	Medium risk site
Medium	High risk site	Medium risk site	Low risk site
Low	Medium risk site	Low risk site	Negligible
Earthworks			
High	High risk site	Medium risk site	Low risk site
Medium	Medium risk site	Medium risk site	Low risk site
Low	Low risk site	Low risk site	Negligible
Construction			
High	High risk site	Medium risk site	Low risk site
Medium	Medium risk site	Medium risk site	Low risk site
Low	Low risk site	Low risk site	Negligible
Trackout			
High	High risk site	Medium risk site	Low risk site
Medium	Medium risk site	Low risk site	Negligible
Low	Low risk site	Low risk site	Negligible

Table A5: Risk of dust impacts

3.9 The receptor sensitivity assessment and determination of impacts includes assessment of receptors within 350 m of the site boundary and within 50 m of the access route up to 500 m from the site.

4 Step 3: Site Specific Mitigation

4.1 Once each of the activities is assigned a risk rating, appropriate mitigation measures are identified based on recommendations in the IAQM guidance. Where the risk is negligible, no mitigation measures beyond those required as best practice are necessary.

5 Step 4: Determine Any Significant Residual Effects

5.1 Once the risk of dust impacts has been determined and the appropriate dust mitigation measures identified, the final step is to determine whether there are any residual significant effects. The IAQM construction dust guidance notes that it is anticipated that with the implementation of effective site-specific mitigation measures, the environmental effect will not be significant in most cases.

6 Step 5: Prepare a Dust Assessment Report

6.1 The last step of the assessment is the preparation of a dust assessment.



**Starling
Environmental
Limited**