TRAFFORD PARK ENVIRONMENTAL PERMIT VARIATION: WET SEPARATION PROCESS

Air Emissions Risk Assessment

Prepared for: S. Norton & Co Limited

SLR Ref: 416.V64371.00002
Version No: 1
September 2023

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1.0 INTRODUCTION

SLR Consulting Limited (SLR) have been retained by S. Norton & Co Limited (S Norton) to prepare an Air Emissions Risk Assessment (AERA)[1] in support of an Environmental Permit (EP) variation for a Metal Recycling Facility (the 'Facility) located at Tenax Road, Trafford Park, Manchester M17 1JT (the 'Site').

1.1 Background

The Facility is currently permitted under the Industrial Emissions Directive (IED) installation operation (ref EPR/XP3792C2/003) which was issued on 31 October 2017 under the Environmental Permitting (England and Wales) Regulations 2016 (as amended) (EPR).

The Non-Technical Summary details of all the proposed changes to the Site requiring a Variation of the Permit. The change of relevance to this AERA is a change to the emission point to air from the filter abatement system serving the shredding process.

1.2 Scope of Assessment

The scope of the assessment is limited to the point source emission to air as a result of the modifications to the Facility. A screening exercise has been undertaken in line with the Environment Agency (EA) AREA guidance to identify process contributions (PC) with insignificant environmental impacts. For PCs that cannot be screened out, detailed assessment will be undertaken. The objective of the assessment is to determine the potential effects of these emissions on the air quality environment, by comparison to relevant guidelines for the protection of human health.

Given the Facility does not emit any substances that require consideration for the potential impacts on protected conservation areas, an assessment of the Facility on ecological receptors has been scoped out, in line with the EA AERA guidance.

[1] Environment Agency, Air Emissions Risk Assessment for your Environmental Permit, February 2016

2.0 LEGISLATION AND RELEVANT GUIDANCE

2.1 National Air Quality Legislation and Guidance

2.1.1 Air Quality Standards

The Air Quality Standards Regulations 2010 (the AQSR) transpose the Air Quality Directive (2008/50/EC) and Fourth Daughter Directive (2004/107/EC) into UK legislation. The regulations include Limit Values, Target Values, Objectives, Critical Levels and Exposure Reduction Targets for the protection of human health and the environment.

2.1.2 Air Quality Strategy

The latest Air Quality Strategy (AQS) was published in 2023[2]. The AQS provides a delivery framework for air quality management across England for local authorities and summarises the air quality standards and objectives operatable within England for the protection of public health and the environment.

The EA's role in relation to Local Air Quality Management (LAQM) is as follows[3]:

> *"The Environment Agency is committed to ensuring that any industrial installation or waste operation we regulate will not contribute significantly to breaches of an AQS objective.*
>
> *It is a mandatory requirement of EPR legislation that we ensure that no single industrial installation or waste operation we regulate will be the sole cause of a breach of an EU air quality limit value. Additionally we have committed that no installation or waste operation will contribute significantly to a breach of an EU air quality limit value."*

2.1.3 Regulation of Industrial Emissions

The Facility is regulated under the EPR (England and Wales) 2016 (as amended). The EPR implements European Union Directives, including 2010/75/EU (the IED) - aimed at reducing emissions from industrial production processes across Europe.

Industrial facilities are issued Permits by the EA under the EPR which specify agreed operating conditions and emission limit concentrations the plant will adhere to and not exceed.

The EPR requires all installations to use the best available techniques (BAT) where possible, and that the BAT conclusions (BATc) documents produced by the European Commission are the reference for relevant BAT. The waste treatment BAT Reference Document (BREF)[4] and associated BATc[5] documents are considered relevant for the Facility. The relevant BAT-AELs prescribed within the BATc document have been used within this assessment. The upper limit of the BAT-AEL has been used to provide a conservative assessment.

Permitting Guidance

Various Guidance Notes provide a framework for the regulation of installations and additional technical guidance are used to provide the basis for permit conditions. Of particular relevance to the assessment is the AERA guidance. The purpose of this guidance is to assist operators to assess risks to the environment and human health when applying for, or varying, a permit under the EPR.

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[2] The Air Quality Strategy for England, Defra. April 2023.
[3] Regulating to Improve Air Quality. AQPG3, version 1, Environment Agency, 14 July 2008.
[4] European Commission, Best Available Techniques (BAT) Reference Document for Waste Treatment, 2018.
[5] European Commission, Establishing Best Available Techniques (BAT) conclusions for Waste Treatment, 10 August 2018.

2.2 Standards for Air Quality

The standards applied in this assessment for the protection of human health are provided in Table 2-1 and are taken from the EA's AERA guidance (collectively termed Air Quality Assessment Levels (AQAL) throughout this report.

The AERA guidance provides the relative environmental thresholds provided in the AQS and AQSR, as well as Environmental Assessment Levels (EALs) provided by the EA, for the protection of health. Table 2-1 sets out those AQALs that are relevant to the assessment with regard to human health.

Table 2-1
Applied AQALs

Pollutant	Annual Standard ($\mu g/m^3$)	Short Term Standard ($\mu g/m^3$)	Reference
PM_{10}	40	50 (24-hour) not to be exceeded more than 35 times per year	AQSR
$PM_{2.5}$	20	-	AQSR
Arsenic	0.006		EAL
Cadmium	0.005		AQSR
Lead	0.25	-	AQS
Nickel	0.02	-	AQSR
Copper	10	200 (1-hour)	EAL
Antimony	5	150 (1-hour)	EAL
Selenium	1	-	EAL
Vanadium	-	1 (24-hour)	EAL
Bromine	-	70 (1-hour)	AQS
Manganese	0.15	1500 (1-hour)	EAL
Mercury	0.25	7.5 (1-hour)	EAL

The Department for Environment, Food and Rural Affairs (Defra) has published technical guidance for use in LAQM (LAQM.TG(22))[6]. According to LAQM.TG(22), air quality standards should only apply to locations where:

> *'members of the public are likely to be regularly present and are likely to be exposed for a period of time appropriate to the averaging period of the objective. Authorities should not consider exceedances of the objectives at any location where relevant public exposure would not be realistic'*.

Thus, the short-term standard should only apply to footpaths and other areas which may be regularly frequented by the public. Longer term standards, such as annual means, should apply at houses or other locations which the public can be expected to occupy on a continuous basis (examples are presented in Table 2-2). These standards do not apply to exposure at the workplace.

[6] Defra, Local Air Quality Management Review and Assessment Technical Guidance LAQM.TG(22), August 2022.

Table 2-2
Relevant Public Exposure

AQAL Averaging Period	AQALs should apply at	AQALs should not apply at
Annual Mean	Building facades of residential properties, schools, hospitals etc.	Facades of offices Hotels Gardens of residences Kerbside sites
24-hour mean	As above together with hotels and gardens of residential properties	Kerbside sites where public exposure is expected to be short term
1-hour mean	As above together with kerbside sites of regular access, car parks, bus stations etc.	Kerbside sites where public would not be expected to have regular access

3.0 ASSESSMENT METHODOLOGY

3.1 AERA Screening Method

A screening exercise has been undertaken in accordance with the AERA guidance. The screening technique is based on dispersion factors for differing stack heights derived from atmospheric dispersion modelling. In accordance with AERA guidance, emissions to air are considered to be insignificant and not require further assessment if:

- the long term process contribution (PC) is <1% of the long term AQAL; and
- the short term PC is <10% of the short term AQAL.

For PCs that cannot be considered insignificant the need for detailed modelling is determined against the following threshold criteria:

- PEC (long term PC + background concentration) is >70% of the AQAL; or
- Maximum PC (short term) >20% of the difference between the short term AQAL minus twice the long term background concentration.

Stack emission testing data for the metal shredder for the period 2018-2021 has been provided by Axion. The screening exercise for speciated metals has been based on the measured stack emissions testing data in the absence of specific BAT-AELs.

The height of the stack is 19.8m above ground level on a structure 15.6m high. The effective height of release is therefore calculated as 7.0m in accordance with the AERA guidance.

On this basis, the dispersion factors have been applied as follows:

- Annual dispersion factor of 40.3µg/m^3 per g/s emitted; and
- Hourly dispersion factor of 42.0µg/m^3 per g/s emitted (converted to appropriate averaging periods in accordance with the AERA guidance).

3.2 Detailed Dispersion Modelling

Detailed atmospheric dispersion modelling has been undertaken with due consideration to the AERA and dispersion modelling reporting guidance[7] (the dispersion modelling checklist is included in Appendix A). The modelling approach is based upon the following stages:

- review of emission sources;
- identification of sensitive receptors;
- compilation of the existing air quality baseline and review of LAQM status;
- dispersion modelling; and
- calculation of process contribution to ground level concentrations and evaluation against relevant environmental standards for human receptors.

3.3 Model Setup

For this assessment the AERMOD model[8] has been applied; this model is widely used and accepted by the EA for undertaking such assessments and its predictions have been validated against real-time monitoring data by the

[7] Air Dispersion modelling report requirements (for detailed air dispersion modelling). AQMAU, Environment Agency (not dated).
[8] Software used: Lakes AERMOD View, (V11.0.0)

United States (US) Environmental Protection Agency (EPA). It is therefore considered a suitable model for this assessment.

3.3.1 Receptors

The modelling has been undertaken using a nested receptor grid the study area. Pollutant exposure isopleths have been generated by interpolation between receptor points and superimposed onto the map. This method allows the maximum ground level concentration outside the Site boundary to be assessed. A receptor grid was applied as follows:

- 200m x 200m at 20m grid resolution;
- 400m x 400m at 50m grid resolution;
- 2000m x 2000m at 100m grid resolution; and
- 4000m x 4000m at 200m grid resolution.

The spatial extent of the grid has been selected to ensure coverage of all local sensitive receptors are within the gridded area and the resolution is such that the maximum impact will be identified.

3.3.2 Building Downwash

Building downwash occurs when turbulence, induced by nearby structures, causes pollutants emitted from an elevated source to be displaced and dispersed rapidly towards the ground, resulting in elevated ground level concentrations. Building downwash has been considered for buildings that have a maximum height equivalent to at least 40% of the emission height and which are within a distance defined as five times the lesser of the height or maximum projected width of the building.

The integrated Building Profile Input Programme (BPIP) module within AERMOD was used to assess the potential impact of building downwash upon predicted dispersion characteristics. Structures input to the model are represented in Figure 3-1.

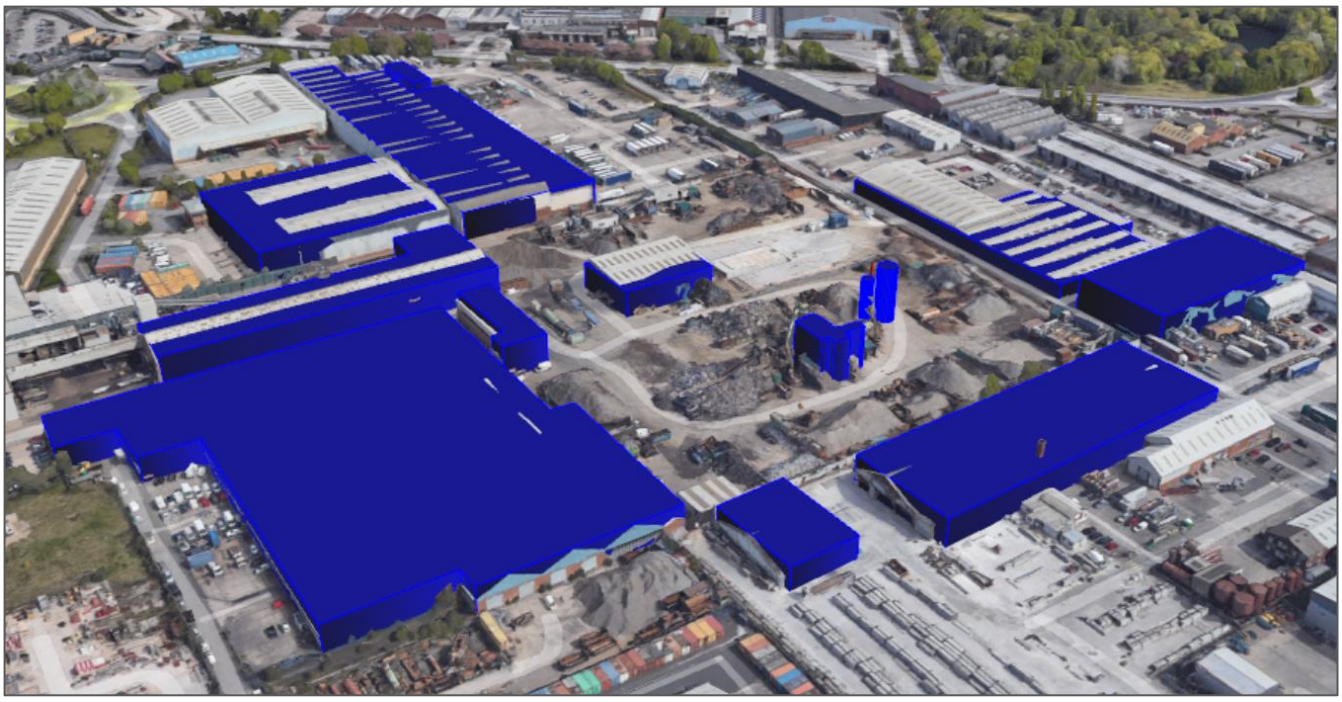

Figure 3-1
Modelled Buildings and Structures

3.3.3 Topography

The presence of elevated terrain can affect the dispersion of pollutants and the resulting ground level concentration in a number of ways. Elevated terrain reduces the distance between the plume centre line and the ground level, thereby increasing ground level concentrations. Elevated terrain can also increase turbulence and, hence, plume mixing with the effect of increasing concentrations near to a source and reducing concentrations further away.

AERMOD utilises digital elevation data to determine the impact of topography on dispersion from a source. Topography was incorporated within the modelling using 30m resolution Shuttle Radar Topography Mission (SRTM) terrain data files. Data was processed by the AERMAP function within AERMOD to calculate terrain heights (see Figure 4-3).

3.3.4 Meteorological Data Preparation

Manchester Airport meteorological station is the closest station to the Site, approximately 12.8km southeast, and was selected for the assessment. The meteorological data (five years hourly sequential data 2015-19) was obtained in .met format from the data supplier and converted to the required surface and profile formats for use in AERMOD using AERMET View meteorological pre-processor. Details specific to the site location were used to define surface roughness, albedo and bowen ratio in the conversion (see Table 3-1). A windrose is presented in Figure 4-2. The 'urban' dispersion co-efficient has been applied in the model.

Table 3-1
Applied Surface Characteristics

Zone (Start)	Zone (End)	Albedo	Bowen Ratio	Surface Roughness (m)
0	30	0.18	0.78	0.075
30	60			0.075
60	90			0.067
90	120			0.051
120	150			0.042
150	180			0.041
180	210			0.067
210	240			0.075
240	270			0.055
270	300			0.050
300	330			0.074
330	360			0.075

3.3.5 Dispersion Model Uncertainty

Model validation studies[9] for AERMOD generally suggest that these dispersion models are for the vast majority of cases able to predict maximum short-term high percentiles concentrations well within a factor of two and the latest evaluation studies for AERMOD show the composite (geometric mean) ratio of predicted to observed

[9] AERMOD: Latest Features and Evaluation Results, EPA-454/R-03-003, June 2003 (United States Environmental Protection Agency)

short-term averages from 'test sites' (where real-time monitoring data is available to validate model performance), to be between 0.96 and 1.2.

3.4 Assessment of Impacts on Air Quality

3.4.1 Treatment of Model Output

The assessment of impacts against the standards as defined in Section 2.1.3 was undertaken using model output as described in Table 3-2 below.

Table 3-2
Model Output

Criteria	Model Output – Process Contribution (PC)	Predicted Environmental Concentration (PEC)
PM_{10} 24-hour mean. Not to be exceeded >35 times a calendar year	Maximum 24-hour mean	PC + 2 x annual mean background concentration

3.4.2 Assessment of Impact and Significance

To assess the potential impact on air quality the predicted exposure is compared to the standards. The results of the dispersion modelling have been presented in the form of:

- tabulated concentrations of maximum ground level concentrations (GLC) to facilitate the discussion of results; and
- illustrations of the impact as isopleths (contours of concentration) for the criteria selected, enabling determination of impact at any location within the study area.

In accordance with the EA's AERA guidance, the impact is considered to be insignificant or negligible if:

- the long-term process contribution is <1% of the long-term standard; and
- the short-term process contribution is <10% of the short-term standard.

4.0 BASELINE ENVIRONMENT

4.1 Site Setting and Sensitive Receptors

The Site is located within on Texax Road within Trafford Park, Manchester, M17 1JT and is approximately 5.5km west of Manchester city centre. The Site is accessed via a road approximately 200m off Tenax Road. The Site is bound by:

- commercial and industrial uses in all directions associated with Trafford Park industrial estate; and
- Trafford Ecology Park to the east.

The nearest residential areas are located approximately 0.6km southeast of the Site along Fifth Avenue.

4.2 Ambient Air Quality

4.2.1 LAQM Review and Assessment

The Site is located within the administrative boundary of Trafford Metropolitan Borough Council (TMBC). The site lies 190m east of the TMBC Air Quality Management Areas (AQMA), declared for exceedances of the annual mean NO_2 AQAL at locations of relevant public exposure. This AQMA is part of the Greater Manchester Combined Authority (GMCA) AQMA.

4.2.2 Local Air Quality Management and Monitoring

TMBC undertake air quality monitoring across their administrative area as part of the GMCA monitoring network. Salford Eccles automatic monitor is located approximately 1.5km northwest of the Site in an industrial/urban background location. Salford Eccles is affiliated with the Automatic Urban and Rural Network (AURN) and monitors concentrations of nitrogen dioxide (NO_2), PM_{10} and $PM_{2.5}$.

The details and results of the Salford Eccles AURN automatic monitor are presented in Table 4-1 to Table 4-3, whilst the location is illustrated in Figure 4-1. All monitoring data presented has been ratified by TMBC.

Table 4-1
Automatic Monitoring: Details

Site ID	Site Type	NGR (m)		Distance to Site (km)
		X	Y	
Salford Eccles	Industrial/Urban Background	377926	398727	1.5

Table 4-2
Automatic Monitoring: Annual Mean PM_{10} Results

Site ID	2019 Data Capture %	Annual Mean PM_{10} Concentration (µg/m^3)				
		2015	2016	2017	2018	2019
Salford Eccles	99.6	17	16	17	15	14

Table 4-3
Automatic Monitoring: 24-Hour Mean PM_{10} Results

Site ID	2019 Data Capture %	Daily Means in Excess of 50µg/m³				
		2015	2016	2017	2018	2019
Salford Eccles	99.9	2	5	2	8	0

Table 4-4
Automatic Monitoring: Annual Mean $PM_{2.5}$ Results

Site ID	2019 Data Capture %	Annual Mean PM_{10} Concentration (µg/m³)				
		2015	2016	2017	2018	2019
Salford Eccles	99.9	11	10	11	11	9

For the period assessed (2015-2019), all monitored PM_{10} and $PM_{2.5}$ concentrations were 'well below' the AQALs at Salford Eccles automatic monitoring site.

4.2.3 Defra Modelled Background Concentrations

Defra maintains a nationwide model of existing and future background air quality concentrations at a 1km grid square resolution. The data sets include annual average concentration estimate for PM_{10} and $PM_{2.5}$ using a reference year of 2018 (the year in which comparisons between modelled and monitoring are made).

The Defra mapped annual mean background concentrations for 2018 (reference year) for the grid square containing the Site is presented in Table 4-5. Defra mapped background PM_{10} and $PM_{2.5}$ concentrations for 2018 have been used to represent the latest year of ratified data and minimise uncertainties with regards future year projections.

The mapped annual mean PM_{10} background concentration presented is well below the AQAL.

Table 4-5
Defra Mapped Background Pollutant Concentrations

Grid Square (X, Y)	Annual Mean Background Concentration (µg/m³)	
	PM_{10}	$PM_{2.5}$
378500, 397500	13.6	9.0
AQAL	***40***	***20***

4.2.4 Heavy Metals Monitoring Network

The EA currently manages and operates the Heavy Metals Network on behalf of Defra. The network monitors concentrations of a range of metalic elements at urban, industrial and rural sites. A review of the Heavy Metals Network has been undertaken for the speciated metals emitted from the Facility to inform the assessment. Sheffield Devonshire Green is the nearest Heavy Metals Network monitor, located approximatley approximatley 56.0km east of the Site in Sheffield city centre. Sheffield Devonshire Green does not monitor Antimony and Mercury. As such, concentrations to inform the assessment have been taken from the nearest Heavy Metals Network monitor with available data (Detling, approximatley 311.0km southeast and Sheffield Tinsley approximatley 60.0km east). The details and results of the Heavy Metals Network pollutants are presented in Table 4-6.

Table 4-6
Heavy Metals Monitoring Network Background Concentrations

Pollutant	Concentration (ng/m^3)	Site Name
Arsenic	0.76	Sheffield Devonshire Green
Cadmium	0.15	Sheffield Devonshire Green
Cobalt	0.14	Sheffield Devonshire Green
Chromium	4.05	Sheffield Devonshire Green
Copper dusts and mists (as copper)	9.49	Sheffield Devonshire Green
Manganese	7.63	Sheffield Devonshire Green
Nickel	1.78	Sheffield Devonshire Green
Lead	7.33	Sheffield Devonshire Green
Antimony	0.26	Detling
Selenium	1.04	Sheffield Devonshire Green
Thallium[(a)]	-	-
Vanadium	0.78	Sheffield Devonshire Green
Mercury[(b)]	0.04	Sheffield Tinsley

Notes
[(a)] Thallium is not currently monitored as part of the Heavy Metals Network
[(b)] 2013 data as measurements ceased

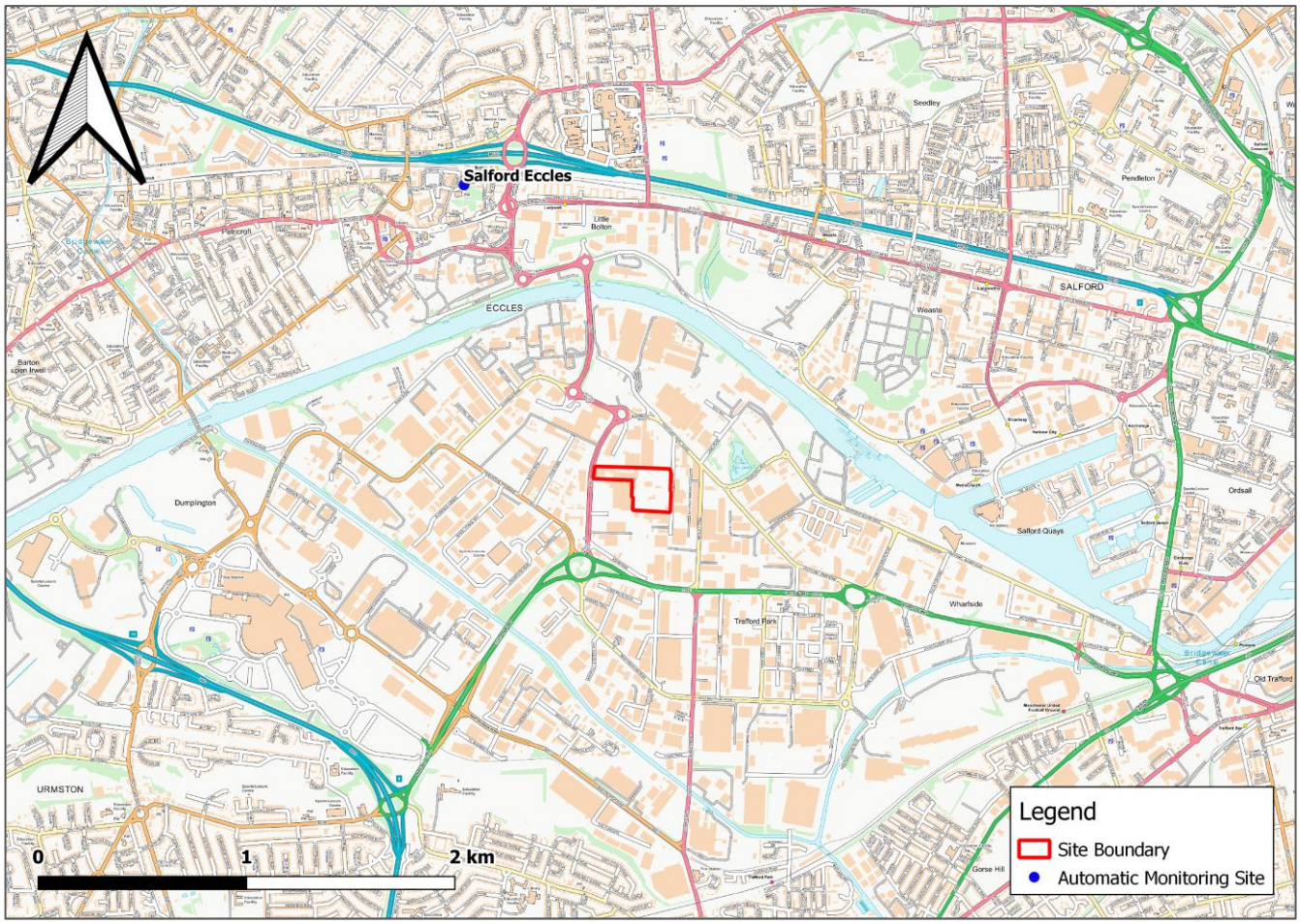

Figure 4-1
Site Setting and Salford Eccles Automatic Monitoring Site

4.2.5 Application of Baseline Data

Following a review of locally reported background PM_{10} and $PM_{2.5}$ concentrations presented in Section 4.2.2, the highest annual mean PM_{10} concentrations recorded at Salford Eccles automatic monitor is 17.0µg/m^3 for PM_{10} and 11.0µg/m^3 for $PM_{2.5}$. In order to provide a conservative assessment, these concentrations have been used to characterise baseline PM_{10} and $PM_{2.5}$ concentrations within the assessment.

For speciated metals, the monitored concentrations presented in Table 4-6 have been used within the assessment.

Baseline concentrations for short-term averaging periods (other than PM_{10} 24-hour 90.4%ile) have assumed to be twice the long-term mean concentration, in accordance with the AERA guidance.

4.3 Meteorological Conditions

A windrose for Manchester Airport 2015-2019, showing the frequency of wind speed and direction used in the assessment is provided in Figure 4-2 below. The windrose shows that winds from the south and west are most frequent with winds from the north and east least frequent.

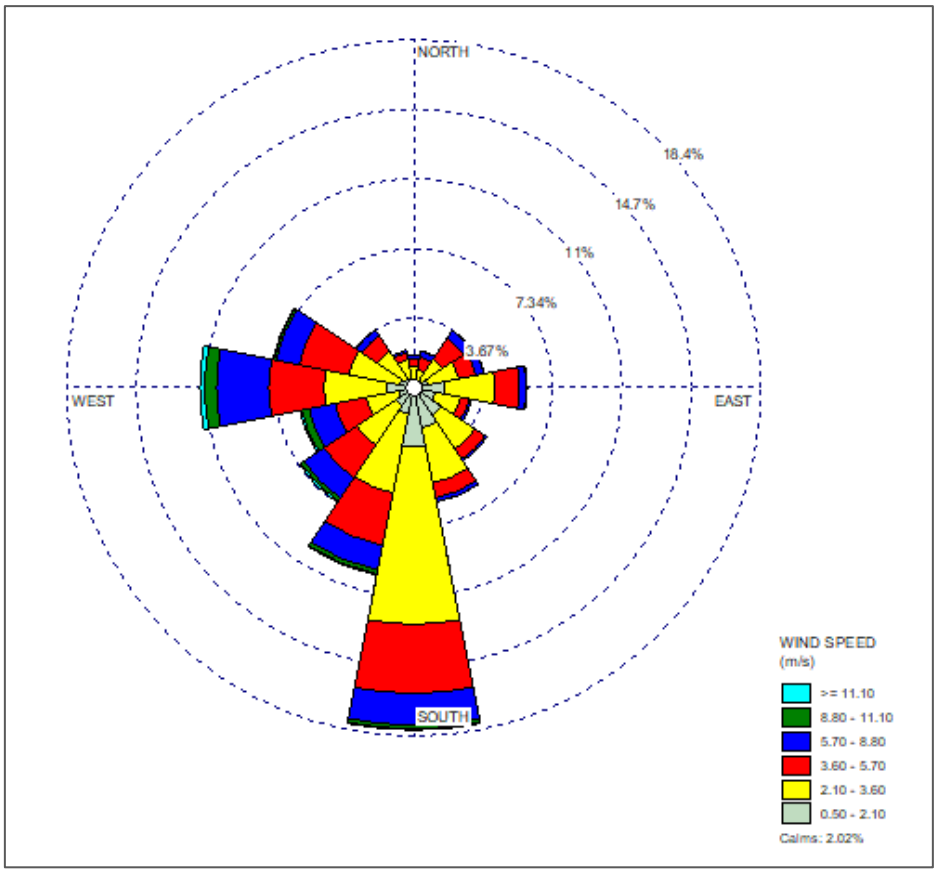

Figure 4-2
Manchester Airport (2015-2019)

4.4 Topography

The Sites lies at approximately 25m Above Ordnance Datum (AOD). The immediate surroundings within 1km are relatively flat with more prominent topographical features rising to between approximately 30m AOD to 40m AOD to the north, east and west. The surrounding topography is illustrated in Figure 4-3 below.

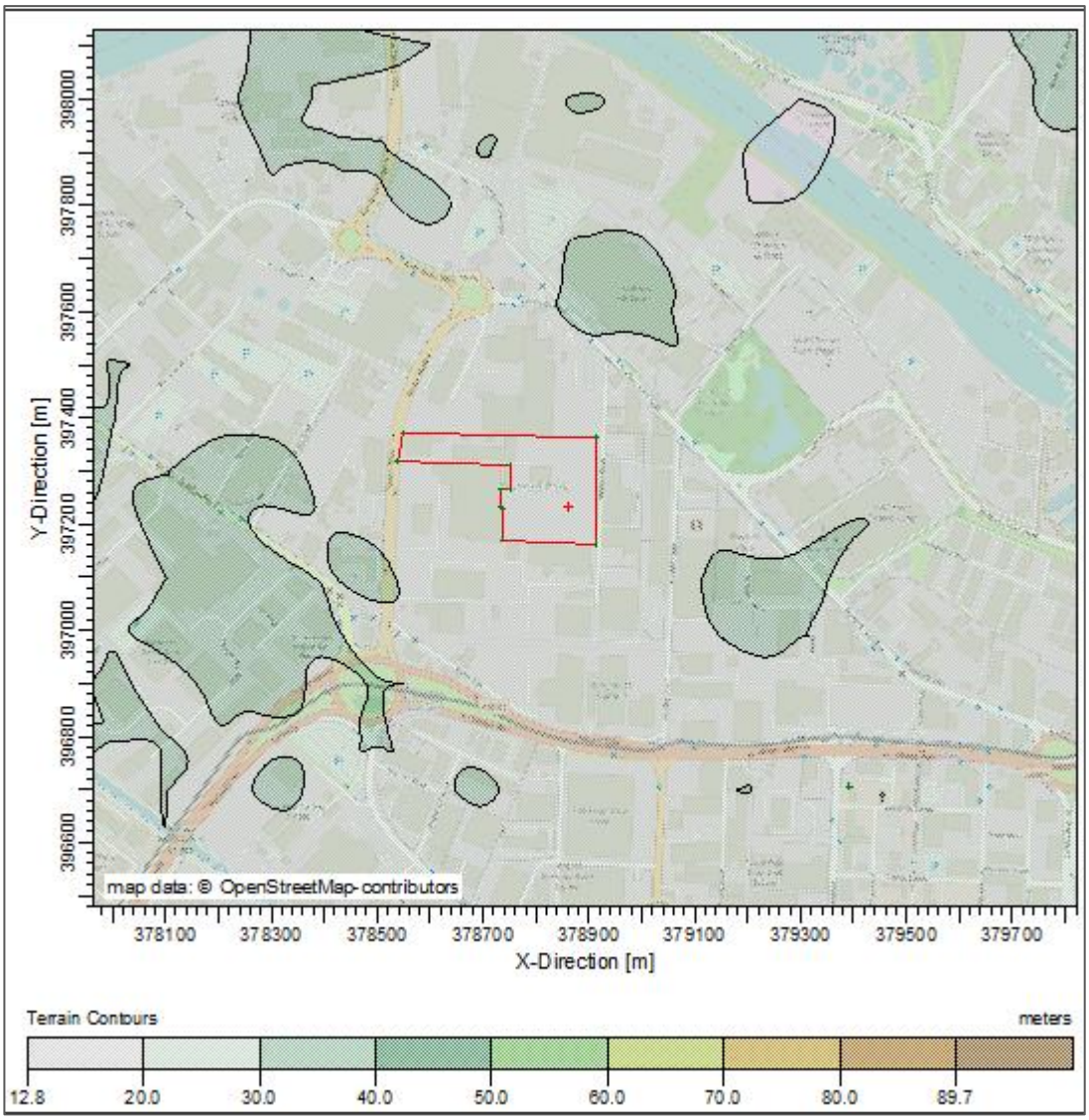

Figure 4-3
Surrounding Topography

5.0 EMISSIONS TO AIR

5.1 Emissions Scenario

For the purpose of the dispersion modelling assessment, it has been assumed that the plant will operate at maximum throughput, 24-hours a day for 365 days per year (i.e. 8,760 hours per year). This is likely to represent a precautionary (worst case) approach as in reality the operational hours are likely to be less to account for maintenance and plant downtime.

5.2 Process Conditions

The emission parameters applied in the model for the metal shredder are based on design data provided by Axion, the appointed engineers for the project. The emission parameters applied in the modelling are provided in Table 5-1.

Table 5-1
Emission Characteristics

Parameter / Source	Metal Shredder
Stack Location (NGR)	x: 378860y: 397230
Stack Height (m)[(a)]	19.8
Stack Internal Diameter (m)	0.64
Emission Temperature (ºC)	25.0
Actual Air Flow (Am^3/s)	5.56
Emission Velocity (m/s)	17.27
Normalised Flow (Nm^3/s)[(b)]	5.01

Notes
[(a)] Above ground level
[(b)] Normalised to 273k, dry, 101.3kPa, No correction for O_2, from actual stack temperature and moisture content (1.6%).

5.3 Applied Emission Rates

The applied emission rates have been calculated from the process emissions detailed in Table 5-1. The emission rates for PM_{10} and $PM_{2.5}$ have been adopted by assuming the maximum BAT-AEL, as included in the BATc document for channelled dust emissions to air from the mechanical treatment of metal waste. The speciated metal emission concentrations are based on the maximum stack monitoring data available, as provided for Axion.

Table 5-2
Emissions from Plant

Pollutant	Emission Concentration (mg/m^3)	Emission Rate (g/s)
PM_{10} (and $PM_{2.5}$)	5	0.025
Bromine	0.02	0.0001

Pollutant	Emission Concentration (mg/m^3)	Emission Rate (g/s)
Arsenic	0.002	0.000008
Cadmium	0.002	0.000009
Cobalt	0.001	0.000006
Chromium	0.014	0.00007
Copper	0.008	0.00004
Manganese	0.001	0.000006
Nickel	0.016	0.00008
Lead	0.026	0.00013
Antimony	0.001	0.000007
Selenium	0.002	0.000009
Thallium	0.001	0.000005
Vanadium	0.001	0.000004
Mercury	0.02	0.0001

6.0 RESULTS

6.1 Screening Results

6.1.1 PC Screening

The screening results for long-term and short-term PCs are presented Table 6-1.

Table 6-1
AERA Screening Results PC

Pollutant	Annual			24-Hour			1-Hour		
	PC (µg/m³)	AQAL	PC % AQAL	PC (µg/m³)	AQAL	PC % of AQAL	PC (µg/m³)	AQAL	PC % of AQAL
PM_{10}	1.0	40	2.5	10.4	50.0	20.9	-	-	0.1
$PM_{2.5}$	1.0	20	5.0	10.4	-	-	-	-	-
Bromine	<0.1	-	-	<0.1	-	-	0.1	70.0	0.1
Arsenic	<0.1	0.01	5.4	<0.1	-	-	<0.1	-	-
Cadmium	<0.1	0.01	7.3	<0.1	-	-	<0.1	-	-
Cobalt	<0.1	-	-	<0.1	-	-	<0.1	-	-
Chromium	<0.1	-	-	<0.1	-	-	<0.1	-	-
Copper	<0.1	10.0	0.0	<0.1	-	-	<0.1	200.0	0.0
Manganese	<0.1	0.15	0.2	<0.1	-	-	<0.1	1500.0	0.0
Nickel	<0.1	0.02	16.1	<0.1	-	-	0.1	-	-
Lead	<0.1	0.50	1.0	<0.1	-	-	0.1	-	-
Antimony	<0.1	5.00	<0.1	<0.1	-	-	<0.1	150.0	0.0
Selenium	<0.1	1.00	<0.1	<0.1	-	-	<0.1	30.0	0.0
Thallium	<0.1	-	-	<0.1	-	-	<0.1	-	-
Vanadium	<0.1	-	-	<0.1	1.0	0.2	<0.1	-	-
Mercury	<0.1	0.25	1.6	<0.1	-	-	0.1	7.5	0.9

As shown in Table 6-1, the annual PC for PM_{10}, $PM_{2.5}$, Arsenic, Cadmium, Nickel Lead and Mercury exceeds 1% of the relevant AQAL. In addition, the 24-hour PC for PM_{10} exceeds 10% of the relevant AQAL. As such, a second stage of screening is required to determine the need for detailed modelling.

The PCs for all other pollutants are below the relevant screening thresholds and no further assessment or detailed modelling is required.

6.1.2 PEC Screening

The screening results for long-term and short-term PECs are presented Table 6-1 for pollutants which could not be screened out for PC.

Table 6-2
AERA Screening Results PEC

Pollutant	Annual			24-Hour		
	PEC (µg/m^3)	AQAL	PEC % AQAL	PC (µg/m^3)	Headroom (µg/m^3)	PC as % of Headroom
PM_{10}	18.0	40.0	45.0	44.4	33.0	31.7
$PM_{2.5}$	12.0	20.0	60.0	-	-	-
Arsenic	0.001	0.01	18.0	-	-	-
Cadmium	0.001	0.01	10.3	-	-	-
Nickel	0.005	0.02	25.0	-	-	-
Lead	0.013	0.50	2.5	-	-	-
Mercury	0.004	0.25	1.6	-	-	-

As shown in Table 6-2 the PC for PM_{10} exceeds 20% of the relevant AQAL headroom and as such requires detailed modelling. All other PECs are below the relevant screening thresholds and no further assessment or detailed modelling is required.

6.2 Detailed Assessment Results

The results of the detailed dispersion modelling relate to the maximum GLC PC predicted across the entirety of the gridded receptors irrespective of relevant exposure, and as such, represents a conservative approach. PCs predicted at all other locations, including human receptors at locations of relevant exposure would be lower. Therefore, if impacts can be screened out at the location of maximum ground level PC, impacts at other areas can also be screened out.

The maximum predicted GLC for PM_{10} 24 Hour (90.41%ile) mean impacts is summarised in Table 6-3. The maximum GLC PC for PM_{10} 24 hour (90.41%ile) mean concentration is <10% of the relevant AQAL and the PEC is well below the AQAL.

Table 6-3
Predicted Maximum Ground Level PM_{10} 24 Hour (90.41%ile) Mean Impacts

Pollutant	Maximum GLC PC (µg/m^3)	PC as % of AQAL	PEC (µg/m^3)	PEC as % of AQAL
PM_{10}	0.2	0.4	17.2	34.4

7.0 SUMMARY AND CONCLUSIONS

This AERA has quantified and assessed the potential air quality impacts associated with EP variation for a Metal Recycling Facility located at Tenax Road, Trafford Park.

The conclusions of the AERA assessment are as follows:

- the screening exercise identified that emissions of speciated metals from the metal shredder are insignificant and require no further assessment in accordance with the EA's AERA guidance;
- the screening exercise identified that 24 hour mean PM_{10} emissions exceeded the criteria for further assessment and therefore detailed modelling has been undertaken; and
- the dispersion modelling found 24 hour mean PM_{10} GLC PC to be well below 10% of the relevant AQAL and no predicted exceedances of the AQAL.

APPENDIX A

Modelling Checklist

Item	Yes/No	Details / reason for omission
Location map	Yes	Figure 4-1
Site plan	Yes	Figure 3-1
Pollutants modelled and relevant standards	Yes	Sections 2.1.3
Details of modelled scenarios	Yes	Section 5.1
Details of relevant ambient concentrations	Yes	Section 4.0
Model description and justification	Yes	Section 3.3
Special model treatment used	Yes	Section 3.4
Table of emission parameters used	Yes	Section 5.1
Details of modelled domain and receptors	Yes	Section 3.3.1
Details of meteorological data used	Yes	Section 3.3.4
Details of terrain treatment	Yes	Section 3.3.3
Details of building treatment	Yes	Section 3.3.2
Model uncertainty and sensitivity	Yes	Section 3.3.5
Assessment of impacts	Yes	Section 5.0
Contour plots	Yes	Appendix B
Model input files	Yes	Appendix C

APPENDIX B

Isopleth Plots

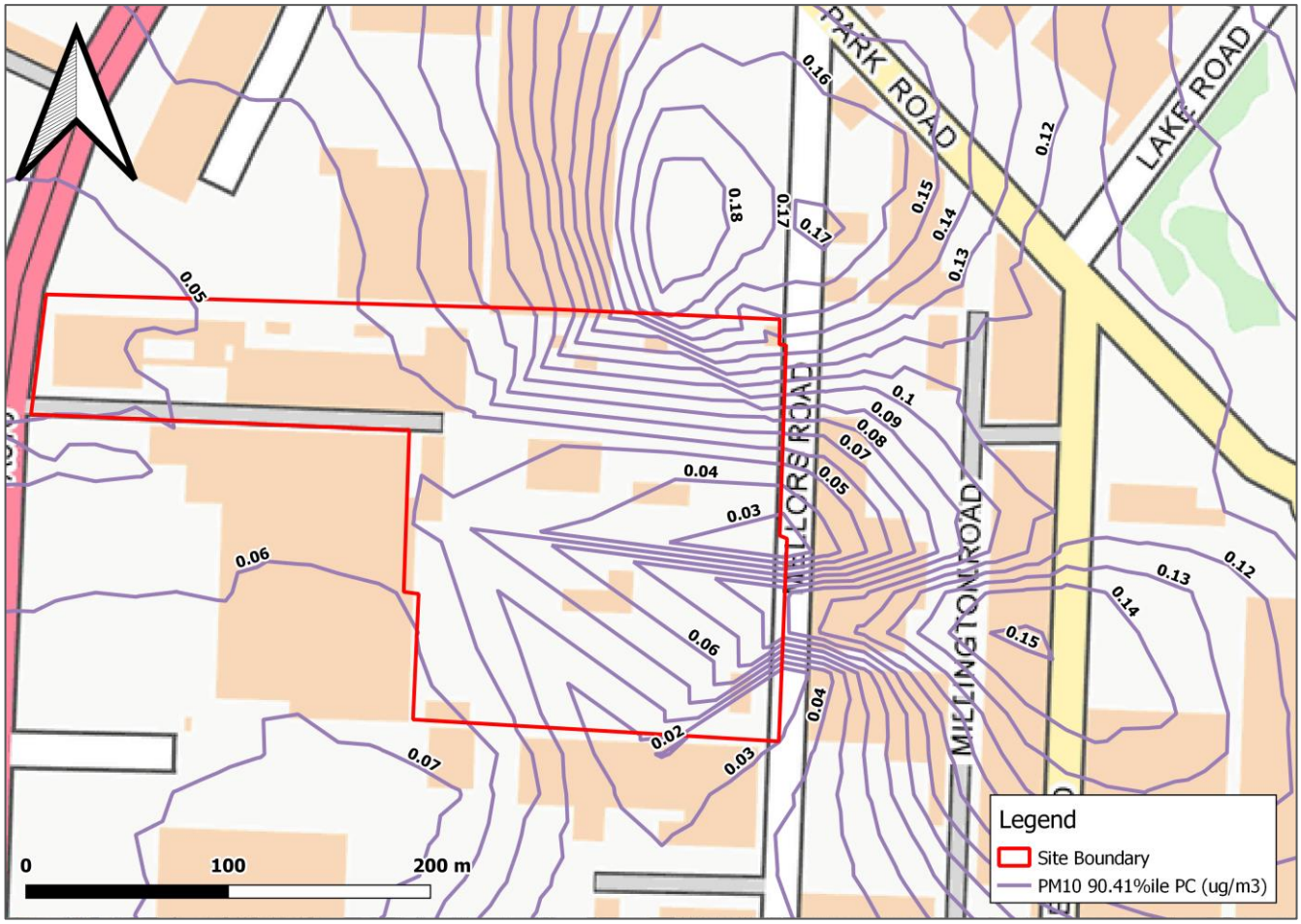

Figure B-1
24 Hour Mean PM_{10} (90.41%ile) PC

APPENDIX C

Model files (electronic only)

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