QUALITATIVE DUST RISK ASSESSMENT SHARSTON RECYCLING CENTRE, SHARSTON ROAD

REC REFERENCE: AQ105976-2R1

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EXECUTIVE SUMMARY

Resource and Environmental Consultants Ltd was commissioned by PP O'Connor Limited to undertake a Qualitative Dust Risk Assessment in support of the proposed development at Sharston Recycling Centre, Off Sharston Road, Manchester.

The proposals comprise the development of the site to provide for the creation of a new access point off Sharston Road to existing waste transfer station together with a waste storage, treatment and recycling centre for non-hazardous wastes including a purpose built installation for waste separation and picking station with associated works and offices within the permitted and licenced waste site.

There is the potential for fugitive dust emissions of dust as a result of the proposed on-site activities. Subsequently, a Qualitative Dust Risk Assessment was required to define baseline conditions and consider impacts as a result of the operation of the proposed development at nearby sensitive locations.

Subject to the continuation and implementation of dust control measures, dust emissions associated with the proposed development were predicted to be **not significant** in the vicinity of the proposed development site.

Based on the assessment results, air quality issues are not considered a constraint to planning consent for the proposed development.

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1. INTRODUCTION

1.1 Background

Resource and Environmental Consultants (REC) Ltd was commissioned by PP O'Connor Limited to undertake a Qualitative Dust Risk Assessment in support of the proposed development at Sharston Recycling Centre, Off Sharston Road, Manchester.

1.2 Site Location and Context

The site is located at Sharston Road at approximate National Grid Reference (NGR): 383250, 389140. Reference should be made to Figure 1 within Appendix I for a location plan.

The proposals comprise the development of the site to provide for the creation of a new access point off Sharston Road to existing waste transfer station together with a waste storage, treatment and recycling centre for non-hazardous wastes including a purpose built installation for waste separation and picking station with associated works and offices within the permitted and licenced waste site.

There is the potential for fugitive dust emissions of dust as a result of the proposed on-site activities. Subsequently, a Qualitative Dust Risk Assessment was required to define baseline conditions and consider impacts as a result of the operation of the proposed development at nearby sensitive locations. This is detailed in the following report.

1.3 Limitations

This report has been produced in accordance with REC's standard terms of engagement. REC has prepared this report solely for the use of the Client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from REC; a charge may be levied against such approval.

2. LEGISLATION AND POLICY

2.1 Dust

The main requirements with respect to dust control from industrial or trade premises not regulated under the Environmental Permitting (England and Wales) Regulations (2016) and subsequent amendments, such as construction sites, are those provided in Section 79 of Part III of the Environmental Protection Act (1990). The Act defines nuisance as:

> *"any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance."*

Enforcement of the Act, in regard to nuisance, is currently under the administration of the local Environmental Health Department, whose officers are deemed to provide an independent evaluation of nuisance. If the Local Authority (LA) is satisfied that a statutory nuisance exists, or is likely to occur or happen again, it must serve an Abatement Notice under Part III of the Environmental Protection Act (1990). Enforcement can insist that there be no dust beyond the boundary of the works. The only defence is to show that the process to which the nuisance has been attributed and its operation are being controlled according to best practice measures.

2.2 National Planning Policy

2.2.1 National Planning Policy Framework

The National Planning Policy Framework[1] (NPPF) was published on 24th July 2018 and sets out the Government's core policies and principles with respect to land use planning, including air quality. The document includes the following considerations which are relevant to this assessment:

> *"Planning policies and decisions should contribute to and enhance the natural and local environment by:*
>
> *[…]*
>
> *Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality.*
>
> *Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local*

[1] National Planning Policy Framework, Department for Communities and Local Government, 2018.

air quality action plan."

The implications of the NPPF have been considered throughout this assessment.

2.2.2 National Planning Practice Guidance

The National Planning Practice Guidance[2] (NPPG) web-based resource was launched by the Department for Communities and Local Government on 6th March 2014 to support the NPPF and make it more accessible. The relevant air quality sections are highlighted below:

> Paragraph 001 states that: *"Defra carries out an annual national assessment of air quality using modelling and monitoring to determine compliance with EU Limit Values" and "It is important that the potential impact of new development on air quality is taken into account, where the national assessment indicates that relevant limits have been exceeded or are near the limit". The role of Local Authorities under LAQM are stated and that Air Quality Action Plans should "identify measures that will be introduced in pursuit of the objectives"*
>
> Paragraph 005 states that *"Whether or not air quality is relevant to a planning decision will depend on the proposed development and its location. Concerns could arise if the development is likely to generate air quality impact in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation"*
>
> Paragraph 007 states that *"Assessments should be proportional to the nature and scale of development proposed and the level of concern about air quality". In terms of mitigation, it states that "Mitigation options where necessary will be location specific, will depend on the proposed development and should be proportionate to the likely impact".*
>
> Paragraph 009 shows a flow chart highlighting how the assessment of air quality impacts should fit into the development management process. It makes it clear that air quality impact risks, AQLVs and AQOs should be considered in the decision-making process.

These were reviewed and the relevant guidance considered as necessary throughout the undertaking of this assessment.

2.3 Institute of Air Quality Management Guidance

The Institute of Air Quality Management (IAQM) published the document 'Guidance on the Assessment of Mineral Dust Impacts for Planning'[3] in May 2016. This guidance specifically deals with assessing dust impacts for planning purposes, namely potential effects on amenity. The assessment methodology outlined in the guidance has been utilised in this report.

2.4 Local Planning Policy

The Manchester Local Development Framework (LDF) Core Strategy was formally adopted in 2012

[2] http://planningguidance.planningportal.gov.uk/.
[3] Guidance on the Assessment of Mineral Dust Impacts for Planning, IAQM, 2016.

and provides a framework for development within the city. The LDF comprises a number of documents which set out Manchester City Councils (MCC) spatial policy framework for delivering a number of policies contained within the Core Strategy which have been saved in accordance with the Planning and Compulsory Purchase Act (2004) and therefore provide the basis for the determination of planning applications prior to the finalisation of the local development framework.

A review of the Core Strategy indicated the following policy in relation to dust air quality that is relevant to this Assessment:

> ***"Policy DM 1 - Development Management***
>
> *All development should have regard to the following specific issues for which more detailed guidance may be given within a supplementary planning document:*
>
> *Effects on amenity, including privacy, light, noise, vibration, air quality, odours, litter, vermin, birds, road safety and traffic generation. This could also include proposals which would be sensitive to existing environmental conditions, such as noise. "*

Reference has been made to this policy during the undertaking of this Qualitative Dust Risk Assessment by assessing fugitive dust emissions across the development site.

3. METHODOLOGY

The proposals include the development the site to provide for the creation of a new access point off Sharston Road to existing waste transfer station together with installation of waste processing equipment, site cabins, weigh bridges and storage bins.

Potential impacts as a result of operational phase fugitive dust emissions associated with the proposals were assessed using the following methodology.

There are a number of tools available for the assessment of dust effects. In this case, based on an understanding of the key issues, the background to the project and the nature of the proposed site, a qualitative based assessment has been completed incorporating the assessment stages as described in Table 1.

Table 1 Assessment Stages

Stage	Description of Main Activities
Review of Wind Data	Wind data was obtained from ADM Ltd for the Manchester Airport meteorological station. This was reviewed in the context of the relative positioning of the proposed development site and the identified potential sources of dust.
Qualitative Dust Risk Assessment	A Qualitative Dust Risk Assessment was completed based on the Institute of Air Quality Management (IAQM) guidance[3]

The potential for impacts at sensitive locations depends significantly on local meteorology during the undertaking of dust generating activities, with the most significant effects likely to occur during dry and windy conditions.

The assessment of potential fugitive dust emission impacts has been undertaken using the following approach:

- Establish baseline conditions of the existing dust climate around the site;
- Identify activities that could lead to dust emissions without mitigation;
- Identify site parameters which may increase potential impacts from dust; and
- Recommend mitigation measures, including modification of site design.

The assessment steps are outlined below.

3.1 Suspended Dust

Concentrations of suspended dust particles in the air (PM_{10}) as a result of the proposed development have the potential to cause impacts on human health. The IAQM Guidance[3] recommends the following methodology for assessing the impact of suspended dust on human health.

3.1.1 Screening Criteria

The IAQM Guidance[3] states that if the background PM_{10} concentration is below 17µg/m^3, then the impacts of suspended dust on human health can be screened out and no further assessment is required.

3.1.2 Assessment of Potential Suspended Dust Impacts

In the event that suspended dust impacts on human health cannot be screened out, the IAQM Guidance[3] states that in order to assess suspended dust impacts from a source, the Process Contribution (PC) as a result of the site activities may be estimated and added to the background concentration to estimate the Predicted Environmental Concentration (PEC) at each sensitive receptor location. The PEC may then be compared against the annual mean AQO for PM_{10} to assess the impact of suspended dust and determine the overall impact significance.

3.2 Deposited Dust

Deposited dust as a result of fugitive dust emissions from the proposed development has the potential to cause disamenity at the site. Vehicle movements both on site and on the local road network also have the potential to result in the re-suspension of dust from haul road and highway surfaces.

The potential for impacts at sensitive locations depends significantly on local meteorology during the undertaking of dust generating activities, with the most significant effects likely to occur during dry and windy conditions.

The assessment of potential fugitive dust emission impacts has been undertaken based on a Source-Pathway-Receptor approach, as outlined within the IAQM Guidance[3] and detailed in the following sections.

3.2.1 Step 1: Describe Site Characteristics and Baseline Conditions

Step 1 involves the description of the proposals and the characteristics of the site and the surrounding area, based on the following considerations:

- Existing sources of dust in the vicinity of the site;
- Background PM_{10} concentrations;
- The location and nature of dust sensitive receptors;
- The location of likely sources of dust emissions;
- Any natural or existing mitigating features such as topography and areas of vegetative screening; and
- Local meteorological data.

The dust impact risk of the site is then determined based on the above considerations.

3.2.2 Step 2: Estimate Dust Impact Risk

Step 2 involves the estimation of the dust impact risk. The dust impact risk is based on a combination of the residual source emissions and the pathway effectiveness.

3.2.2.1 Residual Source Emissions

The IAQM guidance[3] refers to three categories of residual source emission magnitude: large, medium and small. The determination of the emissions magnitude of a source is based on the following seven types of dust-generating activities, as these are likely to have the greatest potential for dust emissions:

- Site preparation/restoration (including soil and overburden handling);
- Mineral extraction (including blasting);
- Materials handling (e.g. loading onto haul trucks or conveyors);
- On-site transportation (haul roads);
- Mineral processing (e.g. crushing and screening);
- Stockpiling/exposed surfaces; and
- Off-site transportation (e.g. leading to trackout onto external road network).

The size of the site, nature and duration of the materials and works and the effectiveness of dust control measures influences the source emission magnitude of an activity.

The residual source emission magnitude categories for each activity have been derived from the methodology described in the IAQM guidance, as detailed in Table 2.

Table 2 Residual Source Emission Magnitude

Residual Source Emission Magnitude	Suggested Definition
Large	**Site Preparation/Restoration:** Working area >10ha, bunds >8m in height, >100,000m^3 of material movement, >10 heavy plants simultaneously active, bunds un-seeded, fine grained and friable material used on-site **Mineral Extraction:** Working area >100 ha, drilling and blasting frequently used, dusty mineral of small particle size and/or low moisture content used on-site, 1,000,000 tonnes per annum (tpa) extraction rate **Materials Handling**: >10 loading plants within 50m of the site boundary, the transfer of material of a high dust potential and/or low moisture content on dry, poorly surfaced ground **On-site Transportation:** >250 movements in any one day on unpaved surfaces of potentially dusty material **Mineral Processing:** Mobile crusher and screener with concrete batching plant used on-site, processing >1,000,000tpa of material with a high dust potential and/or low moisture content e.g. hard rock **Stockpiles and Exposed Surfaces:** Total exposed area >10ha in an area of high wind speeds located <50m of the site boundary, daily transfer of material with a high dust potential and/or low moisture content, stockpile duration >12 months and quarry production >1,000,000tpa **Off-site Transportation:** >200 total Heavy duty vehicle (HDV) movements in any one day on unsurfaced site access road >50m in length with no HDV cleaning facilities, no road sweeper available

Residual Source Emission Magnitude	Suggested Definition
Medium	**Site Preparation/Restoration:** Working area between 2.5 and 10ha, bunds between 4 and 8m in height, between 20,000 and 100,000m^3 of material movement, between 5 to 10 heavy plants simultaneously active, most bunds seeded, material with a medium moisture content used on-site **Mineral Extraction:** Working area between 20 and 100ha, drilling and blasting not frequently used, dusty mineral of larger particle size and/or medium moisture content used on-site, between 200,000 and 1,000,000tpa extraction rate **Materials Handling**: Between 5 to 10 loading plants from 50 to 100m of the site boundary, transferring material of a medium dust potential and/or medium moisture content on semi-dry ground **On-site Transportation:** Between 100 and 250 movements in any one day on unpaved surfaces of low dust potential, <500m in length **Mineral Processing:** Fixed screening plant with concrete batching plant on-site, processing between 200,000 to 1,000,000tpa of material with a medium dust potential and/or medium moisture content e.g. semi-dry sand and gravel **Stockpiles and Exposed Surfaces:** Total exposed area between 2.5 and 10ha in an area of medium wind speeds located between 50 and 100m of the site boundary, daily transfer of material with a medium dust potential and/or medium moisture content, stockpile duration between 1 and 12 months and quarry production between 200,000 and 1,000,000tpa **Off-site Transportation:** Between 25 and 200 HDV movements in any one day on site access road with medium dust potential between 20 to 50m in length with HDV cleaning facilities or road sweeper available
Small	**Site Preparation/Restoration:** Working area <2.5ha, bunds <4m in height, <20,000m^3 of material movement, <5 heavy plant simultaneously active, all bunds seeded, material with a high moisture content **Mineral Extraction:** Working area <20ha, hydraulic excavator, coarse material and/or low moisture content, <200,000tpa extraction rate **Materials Handling**: <5 plants >100m from the site boundary within the quarry void or clean hardstanding, transferring material of low dust potential and/or high moisture content **On-site Transportation:** Employment of covered conveyors used for the majority of the on-site transportation of material, <100 movements of vehicles per day, with surface materials of compacted aggregate, <500m in length and a maximum speed of 15mph **Mineral Processing:** Fixed screening plant with effective design in dust control, processing <200,000tpa of material with a low dust potential and/or high moisture content e.g. wet sand and gravel **Stockpiles and Exposed Surfaces:** Stockpile duration of <1 month with a total area <2.5ha in an area of low wind speeds, located >100m from the site boundary, weekly transfers of material with a low dust potential and/or high moisture content, quarry production <200,000tpa **Off-site Transportation:** <25 HDV movements in any one day, paved surfaced site access road <20m in length, with effective HDV cleaning facilities and procedures, the employment of an effective road sweeper

3.2.2.2 Pathway Effectiveness

Pathway effectiveness is determined within the IAQM Guidance[3] as a combination of the distance of the sensitive receptor to the emissions source and the frequency of potentially dusty winds blowing in the direction of that receptor. To ensure a robust scenario, the distance between the receptor locations and the fuel entrance was utilised, and all winds greater than 5m/s were considered to be potentially dusty.

Table 3 details the criteria used to categorise the distance between the source and the receptor.

Table 3 Categorisation of Receptor Distance from Source

Category	Criteria
Distant	Receptor is between 200m and 400m from the dust source
Intermediate	Receptor is between 100m and 200m from the dust source
Close	Receptor is less than 100m from the dust source

Table 4 details the criteria used to categorise the frequency of potentially dusty winds. It should be noted that all winds greater than 5m/s were considered to be potentially dusty in order to provide a worst-case assessment scenario, regardless of the amount of rainfall.

Table 4 Categorisation of Frequency of Potentially Dusty Winds

Frequency Category	Criteria
Infrequent	Frequency of winds (> 5m/s) from the direction of the dust source on dry days are less than 5%
Moderately Frequent	The frequency of winds (> 5m/s) from the direction of the dust source on dry days are between 5% and 12%
Frequent	The frequency of winds (> 5m/s) from the direction of the dust source on dry days are between 12% and 20%
Very frequent	The frequency of winds (> 5m/s) from the direction of the dust source on dry days are greater than 20%

The distance between the source and receptor and the frequency of potentially dusty winds are then combined to determine the pathway effectiveness based on the criteria outlined in Table 5.

Table 5 Pathway Effectiveness

Receptor Distance Category	Frequency of Potentially Dusty Winds			
	Infrequent	Moderately Frequent	Frequent	Very frequent
Close	Ineffective	Moderately Effective	Highly Effective	Highly Effective
Intermediate	Ineffective	Moderately Effective	Moderately Effective	Highly Effective
Distant	Ineffective	Ineffective	Moderately Effective	Highly Effective

3.2.2.3 Dust Impact Risk

The residual source emissions of the site and pathway effectiveness are then combined to estimate the dust impact risk, as detailed in Table 6.

Table 6 Estimation of Dust Impact Risk

Pathway Effectiveness	Residual Source Emissions Magnitude		
	Small	Medium	Large
Highly Effective	Low Risk	Medium Risk	High Risk
Moderately Effective	Negligible Risk	Low Risk	Medium Risk
Ineffective	Negligible Risk	Negligible Risk	Low Risk

3.2.3 Step 3: Estimate Likely Magnitude Effect

In Step 3, the dust impact risk at the receptors and the sensitivity of the receptors are combined to predict the likely magnitude of effect.

Table 7 details the criteria utilised to determine receptor sensitivity.

Table 7 Sensitivities of People to Dust Soiling Effects

Receptor Sensitivity	Examples
High	• Users can reasonably expect enjoyment of a high level of amenity; or • The appearance, aesthetics or value of users' property would be diminished by soiling; or • The people or property would reasonably be expected to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land. Indicative examples include dwellings, medium and long term car parks and car showrooms.
Medium	• Users would expect a to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home; or • The appearance, aesthetics or value of users' property could be diminished by

Receptor Sensitivity	Examples
	soiling; or • The people or property wouldn't reasonably be expected to be present continuously or regularly for extended periods as part of the normal pattern of use of the land. Indicative examples include parks and places of work.
Low	• The enjoyment of amenity would not reasonably be expected; or • The appearance, aesthetics or value of users' property would not be diminished by soiling; or • There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land. Indicative examples include playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads.

Table 8 details the methodology for determining the magnitude of potential dust effects.

Table 8 Descriptors for Magnitude of Dust Effects

Risk of Dust Impact	Receptor Sensitivity		
	Low	Medium	High
High Risk	Slight Adverse Effect	Moderate Adverse Effect	Substantial Adverse Effect
Medium Risk	Negligible Effect	Slight Adverse Effect	Moderate Adverse Effect
Low Risk	Negligible Effect	Negligible Effect	Slight Adverse Effect
Negligible Risk	Negligible Effect	Negligible Effect	Negligible Effect

Following determination of the magnitude of dust effects, the overall magnitude of effect from dust deposition on the surrounding area is determined. The determination of the overall significance of impact relies on professional judgement and reasoning should be provided as far as practicable. This has been considered throughout the assessment when defining predicted effects.

4. ASSESSMENT

Fugitive dust emissions from the operation of the proposed development have the potential to cause loss of amenity at existing receptors in the vicinity of the site. This is assessed in the following Sections.

4.1 Prevailing Meteorological Conditions

The potential for dust to impact at sensitive locations depends significantly on the meteorology, particularly wind direction, during emissions. In order to consider prevailing conditions at the site, a review of meteorological data was undertaken. In order to represent conditions at the proposed site, data was taken from Manchester Airport meteorological station over a 5-year period (1st January 2013 to 31st December 2017 inclusive). The Manchester Airport meteorological station is located at NGR: 381745, 383960 which is approximately 3.9km south-west of the proposed development site and as such the information is considered to be a suitable source of data for an assessment of this nature.

The frequency of wind from the twelve sectors which best describe the directions that may cause impacts from the proposed development are shown in Table 9. The direction which has the potential to impact at the closest sensitive receptors are shown in **bold** text.

Table 9 Wind Frequency Data

Wind Direction	Wind Direction (˚)	Total Frequency of Wind (%)
North	337.5 - 22.5	3.53
North-east	22.5 - 67.5	6.67
East	67.5 - 112.5	9.96
South-east	112.5 - 157.5	7.52
South	**157.5 - 202.5**	**27.56**
South-west	202.5 - 247.5	15.09
West	247.5 - 292.5	17.57
North-west	292.5 - 337.5	8.80
Sub-Total		96.68
Calms		2.90
Missing/Incomplete		0.42

All meteorological data used in the assessment was provided by Atmospheric Dispersion Modelling (ADM) Ltd, which is an established distributor of meteorological data within the UK. Reference should be made to Figure 2 within Appendix I for a graphical representation of the meteorological data.

As shown in Table 9, the prevailing wind direction at the proposed development is from the south.

Winds from the north and north-east are relatively infrequent, which is indicative of conditions throughout the UK.

As indicated in Figure 1 within Appendix I, receptors are located in all directions to the potential fugitive dust emissions. Receptors to the north of the site are considered to be downwind from the development for approximately 27.56% of the time annually. As such, there is a reasonable probability of emissions from the operations at the proposed development site being carried towards the receptors locations downwind.

Analysis of the 5-years of meteorological data from Manchester Airport meteorological station indicated wind speeds over 5m/s occur on average for approximately 31.54% of the year. However, southerly winds with a speed greater than 5m/s occur for approximately 8.59% of the time respectively. This indicates that southerly winds with wind speeds greater than 5m/s are relatively infrequent.

The closest climate station to the site is at Woodford Climate Station. A review of the 20-years Climate Averages obtained from the Met Office[4] indicated that the average annual rainfall is 867.1mm. As such, the potential for entrainment of dust into the air is limited by both wind speed and rainfall.

The analysis of cumulative effects of the directional winds and wind speeds indicated that existing receptor locations downwind of the facility, to the north of the site, could be affected by potential fugitive dust emissions for approximately a total of 8.59% of the time. Whereas the existing receptors located to the south and south-east of the site could be affected by potential fugitive dust emissions from approximately a combined total of 2.94% of the time.

4.2 Suspended Dust

The operational phase dust assessment for suspended dust followed the methodology outlined in Section 3.1. The background concentration for PM_{10} is 13.47µg/m^3, which is below the screening criteria of 17µg/m^3. The impacts of suspended dust on human health were therefore screened out as **not significant** in accordance with the IAQM guidance[3].

4.3 Deposited Dust

Operational phase deposited dust was assessed based on the methodology outlined in Section 3.2.

4.3.1 Step 1: Describe Site Characteristics and Baseline Conditions

Existing meteorological conditions at the site have been defined in Section 4.1.

A desk-top review of the existing site characteristics and baseline conditions indicated the site is located in a predominantly commercial/industrial area. The main existing dust sources in the vicinity are likely to be a result of the existing commercial units and industrial activities.

Receptors sensitive to potential operational phase dust impacts were identified from a desk-top study of the area. The location of these receptors alongside their sensitivity and distance from the

[4] http://www.metoffice.gov.uk/public/weather/climate/gctcfvrj6

site boundary is summarised in Table 10. Reference should be made to Figure 1 within Appendix I for a graphical representation of sensitive receptor locations.

Table 10 Fugitive Dust Emission Sensitive Receptors - Distance and Sensitivity

Receptor		NGR (m)		Distance from Site Opening (m)	Receptor Sensitivity
		X	Y		
R1	Residential - 131 Longley Close	383299.4	389430.5	294.7	High
R2	Residential - 149 Longley Close	383350.5	389387.6	267.5	High
R3	Residential - 2 Brownington Close	383444.1	389317.1	263.3	High
R4	Place of Work - The Mess Café	383319.6	389171.0	76.9	Medium
R5	Place of Work - Tropical Marine Centre	383258.4	389164.0	25.6	Medium
R6	Place of Work - Howells Railway Products Ltd	383397.5	389165.3	150.5	Medium
R7	Place of Work - Cardinal Maritime Ltd	383306.6	389073.9	87.6	Medium
R8	Place of Work - Stagecoach Manchester Depot	383345.2	389086.8	109.8	Medium
R9	Place of Work - Steroplast Healthcare Ltd	383019.5	389186.8	234.4	Medium
R10	Residential - 27 Northumberland Way	383341.7	388756.1	395.0	High
R11	Residential - 11 Northumberland Way	383149.7	388778.6	375.0	High

The direction of each receptor from the site, the proportion of time the receptor is downwind from the site and the frequency of winds from that direction greater than 5m/s are displayed in Table 11.

Table 11 Fugitive Dust Emission Sensitive Receptors - Proportion of Time Downwind

Receptor		Direction from Site Opening	Proportion of Time Receptor is Downwind from Site (%)	Frequency of Winds from Direction of Dust Source >5m/s (%)
R1	Residential - 131 Longley Close	North	27.56	8.59
R2	Residential - 149 Longley Close	North	27.56	8.59
R3	Residential - 2 Brownington Close	North-east	15.09	6.38
R4	Place of Work - The Mess Café	North	27.56	8.59
R5	Place of Work - Tropical Marine Centre	North	27.56	8.59
R6	Place of Work - Howells Railway Products Ltd	East	17.57	7.70
R7	Place of Work - Cardinal Maritime Ltd	South	3.53	0.69

Receptor		Direction from Site Opening	Proportion of Time Receptor is Downwind from Site (%)	Frequency of Winds from Direction of Dust Source >5m/s (%)
R8	Place of Work - Stagecoach Manchester Depot	South-east	8.80	2.25
R9	Place of Work - Steroplast Healthcare Ltd	West	9.96	2.26
R10	Residential - 27 Northumberland Way	South	3.53	0.69
R11	Residential - 11 Northumberland Way	South	3.53	0.69

4.3.2 Step 2: Estimate Dust Impact Risk

4.3.2.1 Residual Source Emissions

The residual source emission categories assigned to each site activity of the proposals are outlined in Table 12. This was based on information provided by Oakbay Design Limited and, in line with IAQM guidance[3], includes consideration of the mitigation measures, which are to be implemented on site.

It is proposed to implement the same good management techniques as are detailed in the Process operations section of the Screener Permit and also imposed in the Waste Management Permit issued by the Environment Agency. It is essential to keep the site clean and tidy. Water will be made available via the water harvesting tank with the addition of mains water as necessary and used to damp down and suppress dust. The concreted areas, and entrance and egress areas will be swept as necessary. This will help to keep dust emissions down to an acceptable level. In addition, it should be noted that the proposed picking line is within a contained unit and therefore the potential dust emissions from this are limited.

Other measures will be introduced to reduce the effect of dust, as follows:

- The site access will be regularly maintained;
- A speed limit of 5mph will be imposed on all site traffic;
- All plant used for site operations will be fitted with upward facing exhausts;
- Dust suppression system implemented to damp waste in the trommel hopper and covered conveyors;
- All heavy plant will be fitted with radiator deflector plates;
- During loading and unloading of materials drop heights will be minimised;
- A Vacuum road sweeper will be made available should any mud be deposited on the roads; and
- Any dust incidents during the operations will be recorded in the site diary.

Table 12 Residual Source Emission Magnitude

Dust Generating Activity	Residual Source Emission Magnitude	Justification
Site Preparation/Restoration	Small	Working area <2.5ha The stockpile will be limited to 3.5m in height
Mineral Extraction	N/A	No mineral extraction is to be conducted on site
Materials Handling	Small	Methods will be put in place to ensure that the handling of materials is controlled. These include the following: • The 10 person picking belt complex will be fully enclosed • Out in the open, the input stockpile will be positioned behind a screening wall • Unloading and loading recycling activities will be screened from the north by the picking belt complex • For each product produced storage bays will be covered on land to the northern edge Overall the design and surfacing of the proposed development will allow for the site area to be cleaned and maintained to a high standard
On-site Transportation	Small	The main working areas are concrete surfaced The transport of material along the picking belt will be within an enclosed complex
Mineral (Waste) Processing	Small	The 10 person picking belt complex will be fully enclosed Unloading and loading recycling activities will be screened from the north by the picking belt complex For each product produced storage bays will be covered on land to the northern edge It is anticipated that up to 200,000tpa of recycling
Stockpiling/Exposed Surfaces	Small	Out in the open, the input stockpile will be positioned behind a screening wall For each product produced storage bays will be covered on land to the northern edge
Off-site Transportation	Small	The road surface through the site will be hard surfaced allowing the movement of traffic through the site without turning

As indicated in Table 12, the residual source emission magnitude from the proposed development was determined to be **small** from all relevant activities. This assessment has been undertaken presuming that the dust control measures detailed above will be adhered to. This is in line with the IAQM guidance[3] which states that designated mitigation measures should be taken into account when determining the residual source emission.

4.3.2.2 Pathway Effectiveness

The pathway effectiveness for each sensitive receptor is displayed in Table 13 and was determined based on distance of each receptor to the source (as detailed in Table 10, based on the criteria outlined in Table 3) and the frequency of potentially dusty winds blowing towards that receptor (as detailed in Table 11, based on the criteria outlined in Table 4).

Table 13 Pathway Effectiveness

Receptor		Receptor Distance Categorisation	Frequency of Potentially Dusty Winds	Pathway Effectiveness
R1	Residential - 131 Longley Close	Distant	Moderately frequent	Ineffective
R2	Residential - 149 Longley Close	Distant	Moderately frequent	Ineffective
R3	Residential - 2 Brownington Close	Distant	Moderately frequent	Ineffective
R4	Place of Work - The Mess Café	Close	Moderately frequent	Moderately Effective
R5	Place of Work - Tropical Marine Centre	Close	Moderately frequent	Moderately Effective
R6	Place of Work - Howells Railway Products Ltd	Intermediate	Moderately frequent	Moderately Effective
R7	Place of Work - Cardinal Maritime Ltd	Close	Infrequent	Ineffective
R8	Place of Work - Stagecoach Manchester Depot	Intermediate	Infrequent	Ineffective
R9	Place of Work - Steroplast Healthcare Ltd	Distant	Infrequent	Ineffective
R10	Residential - 27 Northumberland Way	Distant	Infrequent	Ineffective
R11	Residential - 11 Northumberland Way	Distant	Infrequent	Ineffective

It should be noted that to ensure a worst-case scenario, all winds of speeds greater than 5m/s were considered to be 'potentially dusty' regardless of the amount of rainfall. This may therefore result in an over-estimation of the pathway effectiveness.

4.3.2.3 Dust Impact Risk

The dust impact risk at each receptor, as shown in Table 14, was determined based on the residual source emissions and pathway effectiveness respectively outlined in Table 12 and Table 13, following the methodology outlined in Table 6.

Table 14 Dust Impact Risk

Receptor		Residual Source Emissions	Pathway Effectiveness	Dust Impact Risk
R1	Residential - 131 Longley Close	Small	Ineffective	Negligible Risk
R2	Residential - 149 Longley Close	Small	Ineffective	Negligible Risk
R3	Residential - 2 Brownington Close	Small	Ineffective	Negligible Risk
R4	Place of Work - The Mess Café	Small	Moderately Effective	Negligible Risk
R5	Place of Work - Tropical Marine Centre	Small	Moderately Effective	Negligible Risk
R6	Place of Work - Howells Railway Products Ltd	Small	Moderately Effective	Negligible Risk
R7	Place of Work - Cardinal Maritime Ltd	Small	Ineffective	Negligible Risk
R8	Place of Work - Stagecoach Manchester Depot	Small	Ineffective	Negligible Risk
R9	Place of Work - Steroplast Healthcare Ltd	Small	Ineffective	Negligible Risk
R10	Residential - 27 Northumberland Way	Small	Ineffective	Negligible Risk
R11	Residential - 11 Northumberland Way	Small	Ineffective	Negligible Risk

4.3.3 Step 3: Estimate Likely Magnitude of Effect

The predicted magnitude of dust impacts, as shown in Table 15, was determined based on the dust impact risk (Table 14) and the receptor sensitivity (outlined in Table 10, based on the criteria outlined in Table 7), following the criteria detailed in Table 8.

Table 15 Magnitude of Dust Impacts

Receptor		Dust Impact Risk	Receptor Sensitivity	Magnitude of Effect
R1	Residential - 131 Longley Close	Negligible Risk	High	Negligible Effect
R2	Residential - 149 Longley Close	Negligible Risk	High	Negligible Effect
R3	Residential - 2 Brownington Close	Negligible Risk	High	Negligible Effect
R4	Place of Work - The Mess Café	Negligible Risk	Medium	Negligible Effect

Receptor		Dust Impact Risk	Receptor Sensitivity	Magnitude of Effect
R5	Place of Work - Tropical Marine Centre	Negligible Risk	Medium	Negligible Effect
R6	Place of Work - Howells Railway Products Ltd	Negligible Risk	Medium	Negligible Effect
R7	Place of Work - Cardinal Maritime Ltd	Negligible Risk	Medium	Negligible Effect
R8	Place of Work - Stagecoach Manchester Depot	Negligible Risk	Medium	Negligible Effect
R9	Place of Work - Steroplast Healthcare Ltd	Negligible Risk	Medium	Negligible Effect
R10	Residential - 27 Northumberland Way	Negligible Risk	High	Negligible Effect
R11	Residential - 11 Northumberland Way	Negligible Risk	High	Negligible Effect

The predicted impact of suspended dust emissions at all sensitive receptors considered is **negligible**. As such, subject to the continuation and implementation of dust control measures, the overall impact of the operations of the proposals is considered to be **not significant** in terms of operational dust, in line with the IAQM Guidance[3].

5. CONCLUSION

REC Ltd was commissioned by PP O'Connor Limited to undertake a Qualitative Dust Risk Assessment in support of the proposed development at Sharston Recycling Centre, Off Sharston Road, Manchester.

The proposals comprise the development of the site to provide for the creation of a new access point off Sharston Road to existing waste transfer station together with a waste storage, treatment and recycling centre for non-hazardous wastes including a purpose built installation for waste separation and picking station with associated works and offices within the permitted and licenced waste site.

There is the potential for fugitive dust emissions of dust as a result of the proposed on-site activities. Subsequently, a Qualitative Dust Risk Assessment was required to define baseline conditions and consider impacts as a result of the operation of the proposed development at nearby sensitive locations.

The potential for dust impacts associated with the operation of the proposed development was assessed in accordance with the IAQM guidance. The Qualitative Dust Risk Assessment indicated that the operation of the plant has a relatively limited potential to give rise to significant dust effects at existing sensitive receptors.

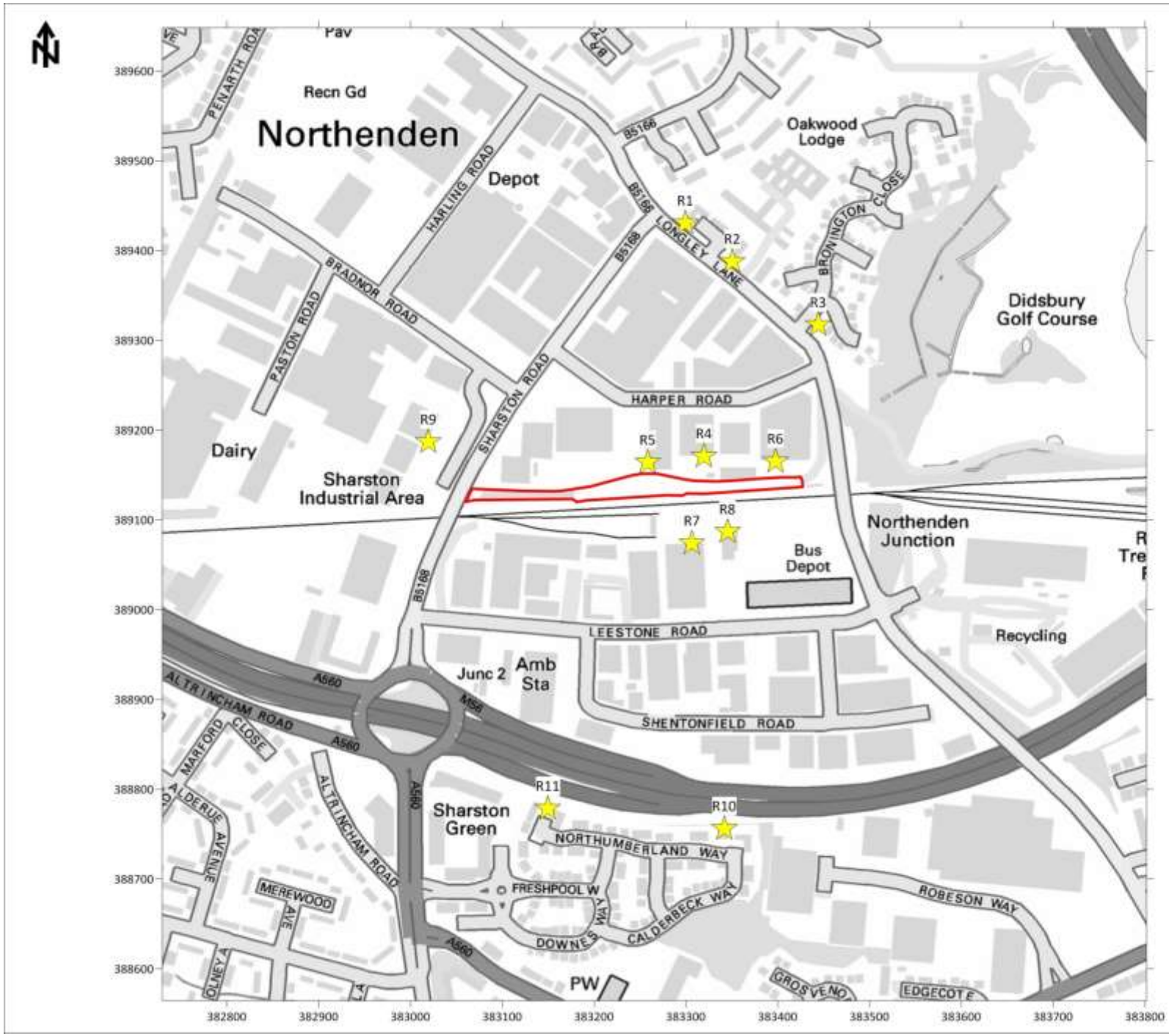
Applying the IAQM assessment method, the predicted impact of suspended dust emissions at all sensitive receptors considered is **negligible**. As such, subject to the continuation and implementation of dust control measures, the overall impact of the operations of the proposals is considered to be **not significant** in terms of operational dust.

Based on the assessment results, potential dust effects are not considered a constraint to planning consent for the proposed development.

6. ABBREVIATIONS

ADM	Atmospheric Dispersion Modelling
BAT	Best Available Techniques
DEFRA	Department for Environment, Food and Rural Affairs
EU	European Union
HDV	Heavy Duty Vehicle
IAQM	Institute of Air Quality Management
LA	Local Authority
MCC	Manchester City Council
NGR	National Grid Reference
NPPF	National Planning Policy Framework
NPPG	National Planning Practice Guidance
PC	Process Contribution
PEC	Predicted Environmental Concentration
PM_{10}	Particulate matter with an aerodynamic diameter of less than 10µm
REC	Resource and Environmental Consultants
SWIPs	Small Waste Incineration Plants
tpa	Tonnes per Annum

APPENDIX I FIGURES



Legend

Site Boundary

Sensitive Receptor Locations

Title

Figure 1

Site Location

Project

Qualitative Dust Assessment
Sharston Recycling Centre, Off Sharston Road

Project Number

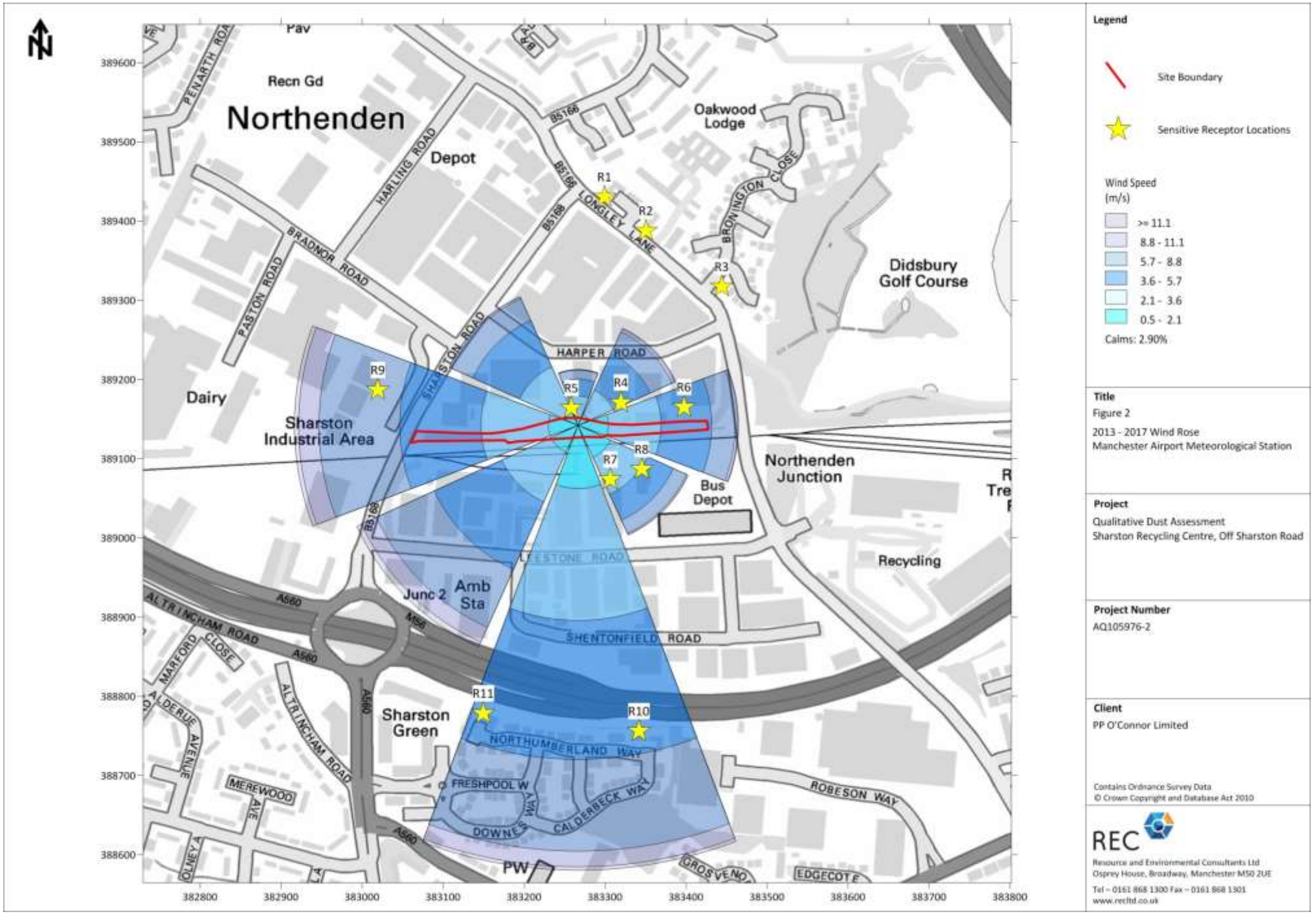
AQ105976-2

Client

PP O'Connor Limited

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Legend

Site Boundary

Sensitive Receptor Locations

Wind Speed (m/s)

- >= 11.1
- 8.8 - 11.1
- 5.7 - 8.8
- 3.6 - 5.7
- 2.1 - 3.6
- 0.5 - 2.1

Calms: 2.90%

Title

Figure 2

2013 - 2017 Wind Rose
Manchester Airport Meteorological Station

Project

Qualitative Dust Assessment
Sharston Recycling Centre, Off Sharston Road

Project Number

AQ105976-2

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