

# **Brocklebank & Co. (Demolition) Limited**

Allende Way, Darnall, S9 5AP

**Brocklebank Recycling Facility**

**Dust Emissions Management Plan**

**STATUS: FINAL**

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## CONTENTS

- 1.0 SCOPE OF PLAN
- 2.0 WASTE OPERATIONS
- 3.0 BASELINE CONDITIONS
- 4.0 SOURCES OF FUGITIVE PARTICULATES & CONTROL PROCESSES
- 5.0 FUGITIVE EMISSIONS MONITORING
- 6.0 CONTROLS IN THE EVENT OF ABNORMAL FUGITIVE EMISSIONS

## DRAWINGS

203381/D/001	Site Location Plan
203381/D/002	Site Receptor Plan
203381/D/003	Site Layout Plan
203381/D/005	Site Monitoring Plan

## APPENDICES

Appendix A	Risk Assessment
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## 1. SCOPE OF PLAN

- 1.1 This dust emissions management plan sets out how the risk of poor air quality emissions will be managed at the Allende Way Aggregate Recycling facility site. The Operator is Brocklebank & Co. (Demolition) Limited. The site is located on an industrial estate, in the Darnall area of Sheffield.

The site is located within the Sheffield City wide Air Quality Management Area declared for annual and 1-hour nitrogen dioxide objectives, and the 24-hour PM10 objective. The site location is shown in drawing 203381/D/001. The nearest residential property is circa 30 m away from the site.

- 1.2 The purpose of this plan is to:
- minimise the emissions of dust, particulates and NO<sub>2</sub> produced by site activities, as far as is practicable, using appropriate best practice measures; and
  - mitigate the potentially adverse impacts of the residual emissions of dust, particulates and NO<sub>2</sub> after all appropriate control measures have been applied with due regard to the sensitivity of the local surroundings.
- 1.3 There is no quantitative assessment / modelling of the dust/air emissions as there are no point source emissions. This management plan incorporates industry good practice including to ensure the air quality emissions risk remains low during the site's operation. The plan has been developed following the principals set out in the EA dust control guidance and SPG Mayor of London Guidance and City of London Code of Practice for Deconstruction and Construction Sites. The relevant guidance in these plans relates primarily to construction processes which are consistent with those operated at the manufacturing site and present good industry practice.
- 1.4 The site consists of a feedstock area, waste washing processing area, recovered aggregate and wastes in concrete storage bays or containers, quarantine area and drainage system. The soil washing is inherently a wet process and there is by default water suppression. Associated infrastructure including site entrance, site offices, weighbridge, maintenance facilities, car parking and fuel storage are sited outside of the permit area, within adjacent land under the Operator's control.
- 1.5 The site is accessed from the north-east of the site. Access from Allende Way and throughout the site is across fully sealed concrete surfacing. The site layout and access are shown by drawing 2033814/D/003. Waste being received and processed at the site will be predominantly from construction and demolition contracts. The types of material will be aggregate, mineral and soil-based consisting of large inert to finer soil fraction material. The washing process means that all feedstock waste is provided an element of water dampening. The maximum permitted import of waste is limited to 250,000 tonnes per annum (tpa).
- 1.6 The waste recovery processes can generate particulates. The sources of emissions and associated controls are described in Section 4 of this plan. The plan sets out the proactive and reactive measures that will be implemented to control the emissions during standard and abnormal operational circumstances. These controls are described in subsequent sections.
- 1.7 In the event that the implementation of controls fails, corrective actions will be identified and implemented.
- 1.8 The scope of this management plan follows the Environment Agency's (EAs) requirements set out in the Dust and Emissions Management template. Monitoring is in line with EA Guidance M17.

## 2. WASTE OPERATIONS

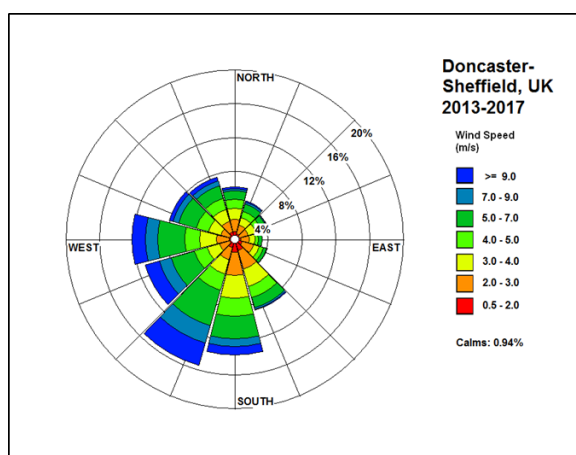
- 2.1 The operations on site involve treatment and storage of non-hazardous, inert waste to produce segregated waste streams for onward recovery by manual and mechanical segregation, screening and washing. The washing process means all processed waste is suppressed with water lowering the risk of potential fugitive emissions.
- 2.2 Table 1 sets out the waste streams, waste management activities and the potential for fugitive particulate emissions.

**Table 1. Waste processes, streams and description of process**

Description	Processes (area)	Potential for fugitive particulate emissions without mitigation
Haulage and site operation	Import and export of waste.	Possible exhaust emissions and fugitive dusts from loads from vehicles (NO <sub>x</sub> , PM <sub>10</sub> (<10 µm) and Total Suspended Particulates (TSP)).
		Possible: Wind entrainment of dust on operating surface and haul route.
Movement and placement of Inert / Non-Hazardous waste streams	Tipping of waste and temporary storage	Possible wind entrainment of waste and materials.
	Loading of material onto hoppers or other vehicles and placement into storage bays	Possible wind entrainment of lighter waste fraction. As the material is transferred or dropped onto the ground there is the potential for wind entrainment of fines. Exhaust emissions and fugitive dusts from the vehicles in operation.
	Washing / wet screening of waste	As the material is transferred on the pre-screen and conveyor or dropped onto the ground there is the potential for wind entrainment of fines. Exhaust emissions and fugitive dusts from the plant in operation (NO <sub>x</sub> , PM <sub>10</sub> (<10 µm) and Total Suspended Particulates (TSP)).
		Possible spillage of waste over the operational area which can cause direct entrainment or increased risk of mud across operational surface.
	Transfer of material and manual segregation into stockpiles	Possible emissions from the movement of plant over the operational area if there is significant build-up of mud and waste.
Possible emissions during the bulk loading of segregated materials		
Storage of Waste	Storage of material or waste within stockpiles	Possible wind entrainment of waste.

## 3. BASELINE CONDITIONS

- 3.1 The site is on an industrial estate that extends to the north and west, with Sheffield City centre beyond. A housing estate has been developed to the east of the site, extending to Allende Way. The site is located alongside a large waste transfer station and there is unsurfaced land to the south used for car sales and open air storage.
- 3.2 The frequency of exposure and likelihood of any fugitive emissions on sensitive land uses is determined by the magnitude of release, proximity of receptors and prevailing meteorological conditions. Meteorological wind data has been acquired from the Met Office from Doncaster Airport weather station, which is approximately 29 km north east of the site. The prevailing wind direction is from the south-west.



- 3.3 Adjacent industrial properties and those commercial/industrial business located to the north-east near the Sheffield and Tinsley Canal are downwind of the prevailing wind direction. The closest residential properties to the east of the site are approx. 30 m away and the closest residential properties to the north-east of the site and therefore directly downwind of the prevailing direction are circa 200 m away. Phillimore Community Primary School is located approx. 230 m east-north-east of the site. Drawing 203381/D/002 shows all the surrounding receptors within 1 km. These are listed in Table 2.

**Table 2. Sensitive receptor locations**

Receptor ID	Description	Sensitivity	Distance from operational site
<b>Residential</b>			
1	Residential area North of Darnall Road	High	From 20 m east
4	Residential area South of Darnall Road	Medium	From 300 m south
9	Residential area off Stovin Drive	Medium	From 330 m north east
<b>Industrial / Commercial</b>			
2	Industrial area adjacent to site	Medium	From 0 m west
		Medium	From 60 m south
	Industrial area South of Darnall Road	Low	From 300 m south
	Area off Attercliffe Road	Low	From 575 m west
	Tinsley Industrial Park	Low	From 600 m east
<b>Recreational Parks</b>			
3	Park adjacent to Phillimore Primary School	Low	From 190 m east
	Darnall Community Park	Low	From 200 m south
	Playing fields off Coleridge Road	Low	From 305 m north
	Don Valley Bowl	Low	From 460 m north
<b>Recreational</b>			
10	Sheffield Olympic Legacy Park	Low	From 270 m north west

Receptor ID	Description	Sensitivity	Distance from operational site
12	English Institute of Sport Sheffield	Low	From 430 m north west
13	Bounce Sheffield	Low	From 480 m north
15	Utilita Arena Sheffield	Low	From 605 m north
<b>Educational</b>			
5	Phillimore Community Primary School	Medium	From 190 m north east
8	Avicenna Academy	Low	From 420 m north
11	Oasis Academy Don Valley	Low	From 440 m north west
16	Al-Mahad Al-Islami Girls School	Low	From 520 m south east
<b>Medical Centers</b>			
17	Darnall Health Centre	Low	From 942 m south east
<b>Surface Water Bodies</b>			
6	Sheffield & Tinsley Canal	Medium	From 150 m west
7	River Don	Low	From 850 m west
<b>Critical Infrastructure</b>			
18	Arena / Olympic Legacy Park Station	Low	From 450 m north
	Attercliffe Station	Low	From 490 m west
<b>Ecology</b>			
	Priority Habitats – Deciduous Woodland	Low	From 290 m north
			From 275 m south
			From 725 m north east
			From 900 m south west
<b>Notes:</b>			
1. Sensitive receptors conservatively derived following a desktop review using Google maps, and anecdotal information.			

- 3.4 The proposed facility is located within the Sheffield City wide Air Quality Management Area, declared for nitrogen dioxide and PM10 objectives.
- 3.5 It is noted that a number of neighbouring land uses have potential to cause dust emissions, Table 3 sets out some of the potential dust emitters closest to the site.

**Table 3. Potential dust emitter locations**

Land Use Type	Name	Approximate distance from site boundary to centre of receptor	Activity
Waste Transfer Station	Fletchers Waste Management Ltd	10 m	Waste handling and processing. Vehicle movements
	Veolia	370 m	
Material storage	Unknown	10 m	Aggregate resale. Vehicle movements.
Public road	Allende Way	5 m	Main access road to the industrial estate
Storage facility	Various users- on land south of Darnall Rd, opposite Allende Way	150 m	Vehicle and plant storage entailing vehicle movements on unsealed surfaces
Car sales	AK Cars Sheffield Ltd	20 m	Car sales- open air storage on unsealed surfaces

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## 4. SOURCES OF FUGITIVE PARTICULATES AND CONTROL PROCESSES

- 4.1 The tipping of waste, loading of waste and recovered materials and associated vehicular movements through the site are considered the main sources of potential emissions. Other sources of potential emissions include, re-suspension off the operating surface/haul route and exhaust emissions from the plant/vehicles. The potential dusts include fine particulate matter, which consists of inhalable fractions (total suspended particulates (<100 µm) and the more dangerous respirable fraction (less than PM10). Such dust types are termed as friable
- 4.2 There are no point source emissions and the potential releases are fugitive in nature. Table 4 sets out the controls that are to be implemented to avoid off site migration.



**Table 4. Site Dust Control Measures**

Abatement Measure	Description/Effect	Overall Consideration and Implementation	Trigger for Implementation
<b>Preventative Measures</b>			
<p>Impermeable concrete surfacing over entire site.</p> <p>Monitoring of condition and routine cleaning.</p>	<p>Concrete surfacing covers the site. It creates a durable and robust operating surface and can be readily cleaned by mechanical and manual sweeping and washdown.</p> <p>The concrete surfacing has positive drainage installed which maintains the running surface in a good condition.</p> <p>Any visible buildup of dust noticeable on surfaces and equipment is removed as soon as is practicable.</p>	<p>The surface of the operational area is scraped of solids and mechanically swept routinely through the day and at end of shift. A road sweeper maintained on site to clean internal/external roads as necessary and at a minimum frequency of daily.</p> <p>If vehicles/plant are heavily soiled they are transferred to the maintenance area and fully cleaned.</p> <p>In the event of damage the concrete hard standing will be repaired within seven working days where possible, as outlined in the Operational Plan. Operations over damaged areas will be restricted until repairs are completed.</p> <p>Routine inspection and encouragement for site team to report dust, mud or damage.</p> <p>Stored materials will be managed to ensure containment within the confines of bays to prevent soiling of concrete surfaces used by plant and vehicles.</p> <p>Use of the dust suppression system will be continually managed to ensure that excessive application of water does not cause soiling of concrete surfaces by stockpile run-off</p> <p>With good housekeeping dust emissions from the surfaces can be avoided.</p>	<p>Excess mud/dust identified during inspections on site or reported by site team.</p> <p>Dust and debris on internal access roads and highway is visually assessed by the Site Manager and/or nominated site supervisor.</p> <p>Concrete surfacing inspected as detailed in the Operational Plan</p> <p>Details of inspections and any actions taken recorded in Site Diary</p>





# Brocklebank, Allende Way

Abatement Measure	Description/Effect	Overall Consideration and Implementation	Trigger for Implementation
<b>Preventative Measures</b>			
Wheel cleaning	<p>Movement of plant and vehicles across surfaces covered in mud can soil adjacent areas and spread mud off site.</p> <p>Upon dessication, wind and further plant/vehicle movements can create dust generation and emissions</p>	<p>All surfaces accessed by plant and vehicles are covered with concrete and kept clean by a road sweeper.</p> <p>The site and Allende Way is inspected regularly by the Site Manager and the road sweeper deployed to clean the surfaces. If required, additional water will be applied from a bowser to clean surfaces.</p> <p>If necessary, manual cleaning of vehicles will be undertaken by site operatives using a pressure washer prior to vehicles leaving site.</p>	<p>Visible mud on the internal and external surfaces</p> <p>Site Supervisor identifies non-compliance.</p> <p>Records of actions taken maintained in Site Diary.</p>
Storage of waste and recovered materials	<p>Tipping of all waste is undertaken in the feedstock area prior to loading onto the conveyor hopper for processing.</p> <p>Following processing, waste and recovered materials are transferred by loading shovel to the appropriate storage bays for removal from site.</p> <p>Stockpiles of cohesive materials will be compacted to minimise wind entrainment. Recovered aggregate will be stored in concrete bays. The compaction of aggregate will decrease the pore space between particles and increasing the bonds between soil particles, in turn reducing the potential for wind entrainment.</p> <p>The compaction method is solely by the excavator tidying up the perimeter of the stockpile and compacting with the bucket to minimise debris rolling down the slopes and will minimise mobilisation by wind or rain</p> <p>Any spillage from the storage bays must be cleaned up as soon as possible after identification</p>	<p>The Site Supervisor will control operations to ensure wastes are appropriately stored</p> <p>In the event waste is poorly stored, corrective measures will be implemented and training re-undertaken.</p> <p>Good controls and housekeeping in the tipping and feedstock storage areas minimises risk of fugitive emissions.</p>	<p>Site Supervisor identifies non-compliance.</p> <p>Records of actions taken maintained in Site Diary.</p>



# Brocklebank, Allende Way

Abatement Measure	Description/Effect	Overall Consideration and Implementation	Trigger for Implementation
<b>Preventative Measures</b>			
Waste processing	Waste processing is a wet screening process by default providing application of water continuously during processing – there is very little potential for dust generation	<p>Plant Operatives will inspect the operation throughout the day. In the event that dust emissions are observed, the Site Manager will be notified and appropriate action taken.</p> <p>This will commence with identification of the source of the dust and the cessation of any inappropriate waste streams.</p> <p>Repairs to the water spray system on processing equipment will be made as soon as reasonably practicable. Essential spares, such as replacement nozzles, will be retained on site to enable repairs in a timely manner</p>	<p>Site Manager identifies non-compliance by visible dust emissions.</p> <p>Records of actions taken maintained in Site Diary.</p>
Use of dust suppression systems	<p>Handling of waste, loading of vehicles and vehicle movements across surfaces can generate dust emissions.</p> <p>A dust suppression system is installed at the site, with fixed spray heads on storage bays walls. The system focuses on wetting up stockpiled material and concrete running surfaces, to prevent dust generation. The system is operated as necessary throughout the day to prevent dust generation.</p> <p>In the event that dust is formed, the system is utilized to suppress airborne emissions and prevent migration off site.</p>	<p>Operatives will monitor condition of stored material and running surfaces throughout the day. If surfaces become dry, the suppression system will be activated at a higher frequency and duration.</p> <p>Application of water through the dust suppression system will be carefully managed to prevent dust generation without causing run-off and potential deposit of suspended solids onto concrete running surfaces.</p> <p>The Site Manager will monitor the weather forecast and increase inspections during dry/windy periods.</p> <p>The system will be inspected on a daily basis to ensure effective operation. Any malfunction should be rectified as soon as possible as a matter of urgency. Repairs should be completed within 1 working day, however within 5 days if external assistance is required. In the event of malfunction alternative measures such as use of mobile units will be deployed if repairs cannot be</p>	<p>Operatives undertake continuous assessment of the condition of the stored materials and concrete surfaces. Water will be applied if surfaces are dry or if dust emissions are visible</p> <p>Site Manager undertakes inspection at a minimum frequency of once per day</p>



# Brocklebank, Allende Way

Abatement Measure	Description/Effect	Overall Consideration and Implementation	Trigger for Implementation
<b>Preventative Measures</b>			
		made.  If the dust suppression system is not operational handling and tipping should cease	
Drop heights and double handling minimised.	<p>Handling friable wastes can exacerbate dust emissions. Reducing drop heights as far as possible and double handling minimise the risk of emissions due to wind entrainment and agitation.</p> <p>Double handling is minimised/avoided wherever possible.</p> <p>Routine review of operations by the Site Supervisor</p> <p>Training of staff to ensure controls implemented.</p>	<p>Loading of wastes under misting systems, reducing drop heights and with the perimeter cladding will minimise emissions from the operation.</p> <p>In the event that emissions are visible during handling, work will cease whilst suitable controls are implemented.</p>	<p>Operatives undertake continuous monitoring for visible dust emissions</p> <p>Site Manager undertakes inspection at a minimum frequency of once per day</p>
Solid cladding around perimeter to reduce dust emissions	<p>The site perimeter is formed of solid cladding extending to a minimum of 4 m in height, in addition to a canopy extending above and over storage bays, reducing the likelihood of any air borne dust emissions migrating from site.</p> <p>Solid cladding on the western boundary extends to 6m in height and reduces the impact of the prevailing winds on the site, minimising the likelihood of dust generation.</p>	<p>Storing, handling and loading of waste and materials behind solid cladding, reduces the risk of entrainment.</p> <p>The site design and good management should ensure the risk of fugitive emissions is minimised.</p> <p>Cladding will be maintained in good condition. In the event of damage, cladding will be repaired within seven working days where possible, as outlined in the Operational Plan. Operations over damaged area will be restricted until repairs are completed.</p>	Site Manager undertakes inspection at a minimum frequency of once per day
Designated area for loading under targeted dust suppression	Wastes and materials being loaded for removal from site will mostly be damp from the washing process. In the event that dust is generated, loading will be undertaken beneath the dust suppression system.	Plant Operatives to monitor dust emissions throughout loading operations. Dust suppression systems to be activated as necessary.	<p>Plant Operatives to assess for visible dust</p> <p>Site Manager undertakes inspection at a minimum frequency of once per day</p>



# Brocklebank, Allende Way

Abatement Measure	Description/Effect	Overall Consideration and Implementation	Trigger for Implementation
<b>Preventative Measures</b>			
Site wide speed limit set at 10 mph for all HGVs	Minimisation of fugitive emissions from site surfacing/ vehicle wheels/ loads by keeping vehicle speed low.	All drivers delivering waste are reminded of the speed limit  Operator's primary control is the site induction and toolbox talks.	If non-compliance is observed, a strike will be given, which when tallied up to 3 strikes for repeat offenders, the haulier will be contacted and driver banned from site.
Vehicles are sheeted upon arrival and exit	Vehicles are sheeted upon arrival and departure. Vehicles temporarily uncover for visual inspection, then re-cover on haul route. Vehicles uncover and unload at waste reception area and sheet up once loaded when removing waste or recovered material from site.	All drivers delivering waste and collecting waste/recovered materials are reminded to keep vehicles sheeted.  Driver's under the Operator's primary control will be subject to a site induction and toolbox talks.	If non-compliance is observed, a strike will be given, which when tallied up to 3 strikes for repeat offenders, the haulier will be contacted and driver banned from site.
Visual monitoring inspection & checklist	The visual monitoring is required to be completed daily by the Site Supervisor or nominated site operative, where wind direction, airborne dust, dust soiling and weather conditions is to be recorded at external and internal locations.  This will inform the need to use additional preventative measures.	The number of visual inspections is increased in accordance with the weather conditions and following an emissions incident or complaint. In windy conditions inspections will occur a minimum of four times a day.  The inspections are undertaken during normal operating conditions and not during breaks. The inspection will include a check of surface condition, waste acceptance, tipping/loading activities, waste and material storage, use and effectiveness of dust suppression systems and condition of cladding.	A minimum of 1 visual inspection will be undertaken per day. During dry / windy conditions, four inspections will be undertaken per day.
Air emissions awareness training	All staff receive internal air emissions awareness training at site induction and through regular toolbox talks to engender awareness on emissions reduction.	All staff receive internal air emissions awareness training at site induction and through regular toolbox talks	All staff receive internal air emissions awareness training at site induction and through regular toolbox talks
Plant complies with contemporary emission standards	Mobile plant complies with London Low Emission Zone for NRMM. Table 4 lists plant on site and the emissions standards achieved.	New and replacement items of plant to be specified to meet the relevant emission standards  In the event of breakdown, replacement plant will be procured to Tier 4 standards wherever possible. In the	Procurement specification



# Brocklebank, Allende Way

Abatement Measure	Description/Effect	Overall Consideration and Implementation	Trigger for Implementation
<b>Preventative Measures</b>			
		event that this is not possible, plant meeting Tier 2 or 3 may be used for short periods of time whilst alternatives are sourced. Tier 1 generators are not permitted.	
Routine servicing of plant and equipment.	<p>All plant and equipment is routinely serviced in line with manufacturers' guidance to reduce NO2 and particulate emissions</p> <p>A proactive maintenance regime is undertaken at the site to ensure that abatement equipment is maintained in good condition.</p>	<p>Good maintenance ensures plant is working satisfactorily and is efficient in fuel burn and emission control.</p> <p>Scheduled maintenance of abatement plant such as dust suppression systems and sprays on process equipment reduces the risk of failure and potential release of emissions.</p>	Frequency of servicing will be undertaken in line with manufacturer's guidance, or as faults or excessive emissions are identified.
Plant and equipment will be switched off when not in use	Plant, vehicles and equipment will be switched off when not in use to reduce excessive emissions.	<p>The importance of this measure is reinforced during briefings, site induction and during site walkovers by the Site Manager and the site operative nominated for visual dust monitoring.</p> <p>Good management control will minimise NO2 and PM2.5 emissions from exhaust fumes.</p>	During site walkovers by the Site Manager and supervisors, operatives and drivers will be reminded to switch off their engines if idling is observed. Repeat incidences will be recorded in the Site Diary.
Waste assessment and dusty load response procedure	<p>Prior to acceptance the waste will be reviewed to determine its characteristics including dusty load check. This may include photograph checks or review of geology (silty / clay fraction may cause greater dust potential).</p> <p>Upon entering the site, loads are inspected on the weighbridge by staff member responsible for waste ticket collection/examination. Waste composition information is relayed onto machine driver and yard manager via two-way radio. A second inspection is undertaken during tipping.</p> <p>If an unacceptably dusty load is identified at either of these stages, the load will be returned to the waste producer. If the load has been tipped, it will be re-loaded under dust</p>	<p>In the unlikely event that a dusty load is accepted, the load will be dealt with under dust controls within the enclosure.</p> <p>The waste producer will be notified, and an investigation initiated to prevent recurrence.</p> <p>The controls will reduce the risk of dust emissions and a risk of fugitive release.</p> <p>All recording and normal controls will be in accordance with the Operational Plan;</p>	Inspection and identification of dusty loads undertaken at ticket office and during tipping.



# Brocklebank, Allende Way

Abatement Measure	Description/Effect	Overall Consideration and Implementation	Trigger for Implementation
<b>Preventative Measures</b>			
	suppression to adsorb any dust generated. If the dust suppression sprinklers prove inadequate in controlling dust, water applied from handheld hoses will also be used to provide supplementary control.		
Inspection of site for litter	<p>Given the waste types accepted and good housekeeping standards adopted, litter is not expected on site.</p> <p>A daily litter pick is undertaken by a nominated site operative who has been briefed internally on housekeeping requirements. This prevents build-up of debris and airborne emissions of waste.</p>	Site Manager to inspect for litter on a daily basis and if evident, investigate the source, organize removal and take appropriate measures. If litter has migrated offsite, litter pick will also cover external highway.	Visible litter during daily inspections or general supervision.
Records of visual site inspections recorded	Records of visual site inspections recorded in Site Diary and on visual monitoring checklist.	Records allow for easy review and identification of dust sources in the event of complaints/ emission incident etc.	Results and checklist of visual inspections are to be filled out and recorded each time.

- 4.3 As a minimum, this plan will be reviewed on an annual basis to ensure that it is up to date, addressing the dust risks of the operations at any time. The plan will be reviewed by Senior Management either following an emissions incident quantified by a substantiated complaint, a monitoring threshold exceedance or observed emissions over the boundary. The review procedure will be undertaken within 1 month of the incident to allow any further data to be interpreted. The review will ensure mistakes are learnt from and new/improved methods will be integrated.
- 4.4 All fixed equipment is powered by modern electrical motors using electricity from the mains supply. In the event of a catastrophic power failure, the site will temporarily cease operations. For short term operations, as a minimum, Tier 2 or 3 will be used if absolutely necessary.
- 4.5 Mobile plant operated on site is procured with reference to the London 'Low Emission Zone' for Non-Road Mobile Machinery (NRMM). Table 5 details items of plant currently operated on site and the emission standards met.

Table 5. Mobile Plant operated on site

Manufacturer	Machine Type	Model	Emission Standard
Excavator	Caterpillar	320GC	Tier 4
Loading Shovel	Caterpillar	966K	Tier 4
Road sweeper	DAF	45	TBC
Telehandler	JCB	540/170	Tier 4

- 4.6 The procurement team are aware of the standards required for internal combustion engine classification and the need for the more suitable Tier 4 standard, where practically possible.
- 4.7 All internal combustion engines are regularly serviced and maintained in accordance with manufacturer's recommendations.
- 4.8 Water for suppression will be sourced from onsite abstraction boreholes (< 20 m<sup>3</sup> per day), mains potable source (conservatively assessed as 50 m<sup>3</sup>), and the on-site water sub-surface tank (60 m<sup>3</sup>). The total worst case water suppression volume capacity is likely 130 m<sup>3</sup>. The Operator would have direct access to the onsite sources. The Operator will promote rainwater harvesting, where possible.
- 4.9 The estimated worst-case water consumption of on-site operations is calculated below:

**Table 6. Onsite worst-case water consumption**

Dust suppression Activity	Worst Case Water Consumption (per day)
Road sweeper	35L/min x 10 hours = 21 m <sup>3</sup>
Fixed high-pressure misting system	13.2L/min x 10 hours x 2 systems on site = 15.84 m <sup>3</sup>
Mobile high pressure hose and bowser suppression	2,200 L tank emptied x 10 trips (1 per hour) = 22 m <sup>3</sup>
Maintenance (cleaning, washing down)	Estimated at 0.5 m <sup>3</sup>
<b>Total</b>	<b>58.84 m<sup>3</sup></b>
1. Water consumptions taken from WRAP 'Case Study: Water Efficiency on construction site'. 2. Calculations based on a 10-hour day.	

- 4.10 Based on the worst-case scenario in Table 2, the water suppression capacity at the site can comfortably deal with site operations. The volume capacity is likely to provide contingency measures but off-site sources would be used during drought conditions.

## 5. FUGITIVE EMISSIONS MONITORING

- 5.1 A daily site inspection will be undertaken by the Operator including the control of dusts, conditions of haulage routes and the provision of controls. This information will be recorded in the Site Diary. In the event visual dust emissions are identified mobilising within the site boundary, a non-conformance report will be implemented, and corrective/preventative actions prescribed. To note, any site operative can report incidents to their line manager and appropriate actions will be taken immediately. The inspection will be undertaken by the Site Manager and/or a nominated site operative. In the event the Manager is not at the site, the Site Supervisor and/or nominated site operative will be expected to undertake the site inspection. The Site Diary is kept in the site office / welfare unit. Corrective actions are outlined in Section 6 and will be recorded in the Site Diary and effectiveness monitored.
- 5.2 The monitoring locations are shown on drawing 203381/D/005 and the design of the site layout in drawing 203381/D/003. In line with the EA guidance, the daily inspections will have a trigger threshold of visual dust (in the form of a dust plume) within the boundary identified. This trigger threshold is an internal site action threshold only and not a compliance threshold. There is no severity to visual dust: if it is seen, a response procedure must be implemented.
- 5.3 In the event this threshold is breached, the Site Manager or nominated site operative will notify the Site Team and the response procedure will be initiated. The response procedure actions are set out below:
- When a visual dust plume is identified leaving the site boundary, the Site Manager and/or nominated site operative will assess the operations, waste type being handled and deliveries immediately prior to the alarm being activated;
  - If the source cannot be ascertained with certainty, the Site Team will temporarily cease the most likely operation;
  - If the source is within the site's control, the Site Team will take appropriate action in terms of dust/particulate abatement to ensure further observations do not encounter the same emissions for a similar activity. Actions will include:
    - Review of the activity's dust control measures;
    - Increased frequency of the existing control measures; and
    - Temporarily suspending likely works until suitable abatement can be introduced.
  - If an effective control measure cannot be identified and the action observation level is exceeded again within 30 minutes of the first alarm raised; and the wind direction indicates it could be from the site; the source activity will be suspended until sufficient controls can be achieved. Visual inspection frequency will be every half an hour during the response procedure, until incident is closed out.
  - If there are more than three incidents within a month, quantitative dust monitoring will be undertaken to establish source and effective control measures.
- 5.4 The action observation exceedance will be logged in the Site Diary and a report of the exceedance and corrective action response to the local EA officer via email. Any exceedance which is not from the site but from an adjacent third-party activity, will be noted in the Site Diary. All complaints will be logged and dealt with appropriately in accordance with the Operator's complaint procedure. All monitoring data will be made available to the Local Authority and Environment Agency, upon request or as specified within the Environmental Permit.



- 5.5 The stockpiles and concrete surfaces will be inspected prior to shutting up the site each day and, if deemed unacceptable, will be wetted to minimise dust mobilisation overnight.
- 5.6 External complaints will be dealt with in accordance with the complaints procedure and complaints form as per the wider Environmental Management Systems (shown in Noise Management Plan appendices).
- 5.7 If numerous complaints ( $\geq 5$  substantiated complaints from separate receptors) are received within one week or less, operations will be ceased temporarily until the issue is discussed and resolved by taking appropriate measures.

## 6. CONTROLS IN THE EVENT OF ABNORMAL FUGITIVE EMISSIONS

- 6.1 In the event that fugitive particulate emissions are identified during site inspections the following controls should be applied:
- take immediate action to cease operations;
  - investigate the incident; and
  - record the incident and the remedial site action in the Site Diary.
- 6.2 Remedial actions are dependent on the source but may include, but not limited to:
- Increase the frequency of road sweeping on site, along the access road and public highway;
  - Deploy more dust suppression across the site, specifically targeting the source of dust; and
  - Limit relevant activities during periods of high wind and/or during very hot/dry periods (in addition to the standard controls being implemented).
- 6.3 In the event that these controls do not resolve fugitive particulate emissions at the site, key source activities will be suspended until suitable arrestment systems are implemented. These systems will be implemented in agreement with the Local Authority and the EA. The systems may include permanent use of remedial actions stated in section 6.2 or alternative measures, as agreed.
- 6.4 This section of the plan deals with the management and control of particulate emissions during maintenance and abnormal circumstances. It sets out the ways in which the Site Manager will operate an action plan for abnormal event scenarios (including emergencies, maintenance, breakdowns, weather anomalies, etc) and if particulate emissions are identified during inspections.
- 6.5 Table 7 summarises the foreseeable situations that may compromise the ability to prevent and/or minimise releases from the processes.
- 6.6 A tabular approach has been employed in the evaluation of control techniques during maintenance and abnormal events. The tables:
- identify the location and conditions under which abnormal operational conditions or failures might arise;
  - summarise the potential impact or consequences of the identified abnormal / failure situation and assesses the degree of those impacts; and
  - describe how the conditions could be prevented and/or mitigated and controlled. The majority of abnormal situations can be controlled in some way by effective management.
- 6.7 Solutions to mechanical problems will necessitate the replacement or repair of component parts. With regards to essential items of equipment a list of spares should be maintained as part of the



# Brocklebank, Allende Way

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management plan. This list should be based on the manufacturers' recommendations together with standby equipment for some critical items (e.g. dust suppression system and spray systems on the processing plant).

**Table 7. Abnormal circumstances and controls**

Location of emission	Circumstances	Consequences	Preventative measures	Controls
Access route at facility	Accident involving delivery vehicle causing major spillage of feedstock.	Uncontrolled fugitive release of particulates.	Response plan to deal with accidents.	<p>Senior management to initiate accident response plan. The delivery vehicle will be made-safe.</p> <p>If drivable, remaining material discharged appropriately and/or vehicle removed off site. Waste material collected and transferred, and hard standing hosed down.</p>
Damage to boundary cladding	Breach of the cladding can cause fugitive emissions	Potential for fugitive emissions	Regular inspection of cladding should be undertaken.	<p>Cladding is protected from damage from plant and vehicles site side by the push walls of the storage bays. The pedestrian pavement and concrete external wall offers protection from vehicle damage external to the site.</p> <p>The cladding and supporting structure is of a robust design and construction, able to withstand considerable wind loading</p> <p>Damage to cladding to be repaired asap and within 7 days wherever possible, as detailed in the OP.</p>
Failure of dust suppression system	Loss of water supply	Potential for fugitive emissions	<p>Ensure onsite water supply pipework is adequately protected from freezing by insulation</p> <p>The site routinely operates 2 x boreholes for water abstraction (&lt; 20 m<sup>3</sup> per day) and is not reliant on a single source in case of pump failure</p>	<p>All components of the system are subject to annual inspection prior to each winter. Repairs and improvements to insulation made as necessary.</p> <p>All components parts of the dust suppression system are subject to routine maintenance</p> <p>Mobile equipment to be deployed in the event of a failure that cannot be repaired within 7 days</p> <p>Importation of water and use of mobile tanks as an alternative supply if necessary</p>
	Damage to pipework or fittings	Potential for fugitive emissions	Water pipework is above ground and outside of plant's working area to reduce risk of damage. Spray heads are	Operations will cease if there is a total failure of the dust suppression system or any contingency



# Brocklebank, Allende Way

Location of emission	Circumstances	Consequences	Preventative measures	Controls
	Mechanical failure	Potential for fugitive emissions	<p>protected by steelwork where there is potential for damage.</p> <p>Regular inspection and maintenance</p> <p>Maintain a supply of critical parts on site</p> <p>Site maintenance team available to undertake maintenance and repairs</p>	

6.8 In the event that fugitive particulate emissions are identified during site inspections the following controls should be applied:

- take immediate action to cease operations;
- investigate the incident; and
- record the incident and the remedial site action in the Site Diary.

6.9 Temporary remedial actions are dependent on the source but may include, but not limited to actions in Table 8.

**Table 8. Remedial actions to reduce emissions**

Source	Temporary remedial action
Loading activities in the external rear yard	<ul style="list-style-type: none"> <li>• Increased sprinkler coverage and/or flows</li> <li>• Cease relevant loading activities in strong winds</li> <li>• Additional dust control netting</li> </ul>
Concrete surfacing / mud on road	<ul style="list-style-type: none"> <li>• Minimise HGV movements;</li> <li>• Increase the frequency of road sweeping on site and public highway; and/or</li> <li>• Deploy more misting systems</li> <li>• Improve performance of wheelwash</li> <li>• Operatives to undertake additional wheelcleaning.</li> </ul>
Waste processing	<ul style="list-style-type: none"> <li>• Limit activity of relevant process (in addition to the standard controls being implemented);</li> <li>• Increased sprinkler coverage and/or flows</li> <li>• Erect wind netting or screens around the relevant operation; and/or</li> <li>• In the event reducing processing fails, suspend processing operations (trommel and blower)</li> </ul>
Waste storage	<ul style="list-style-type: none"> <li>• Reduce untreated feedstock size or transfer segregated wastes off site within 24 hours; and/or</li> <li>• Deploy more misting systems.</li> <li>• Temporary sheeting of stored fines</li> </ul>

6.10 In the very unlikely event that these controls do not resolve fugitive particulate emissions at the site, key source activities are suspended until suitable arrestment systems are implemented. These systems are implemented in agreement with the Local Authority and the EA. The systems may include permanent use of remedial actions stated in Table 8 or suitable alternative measures.

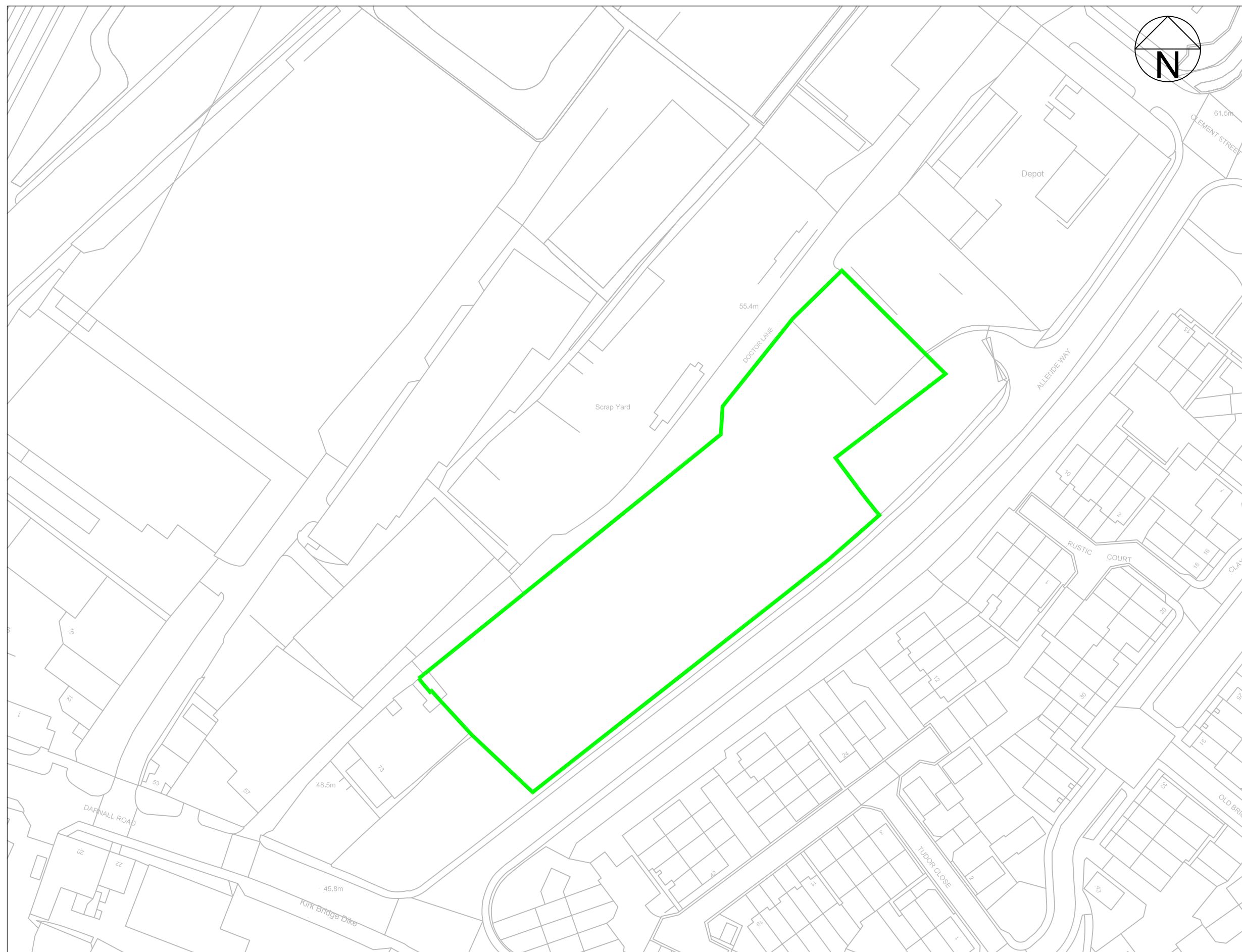
Report by:	AA Environmental Limited
Author: Edward Brown BSc (Hons) MCIWM	Registered office: Units 4 to 8 Cholswell Court Abingdon Oxfordshire OX13 6HX T: 01235 536042 E: <a href="mailto:info@aae-ltd.co.uk">info@aae-ltd.co.uk</a>
Reviewer: Matthew Lawman BSc (Hons) MSc	
Date: September 2023	



# Brocklebank, Allende Way

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## DRAWINGS



**Key:**  
— Permit Boundary

Rev.	Details	Drawn	Date
		Chkd.	

Project  
**203381**  
 Brocklebank Soil Washing Facility

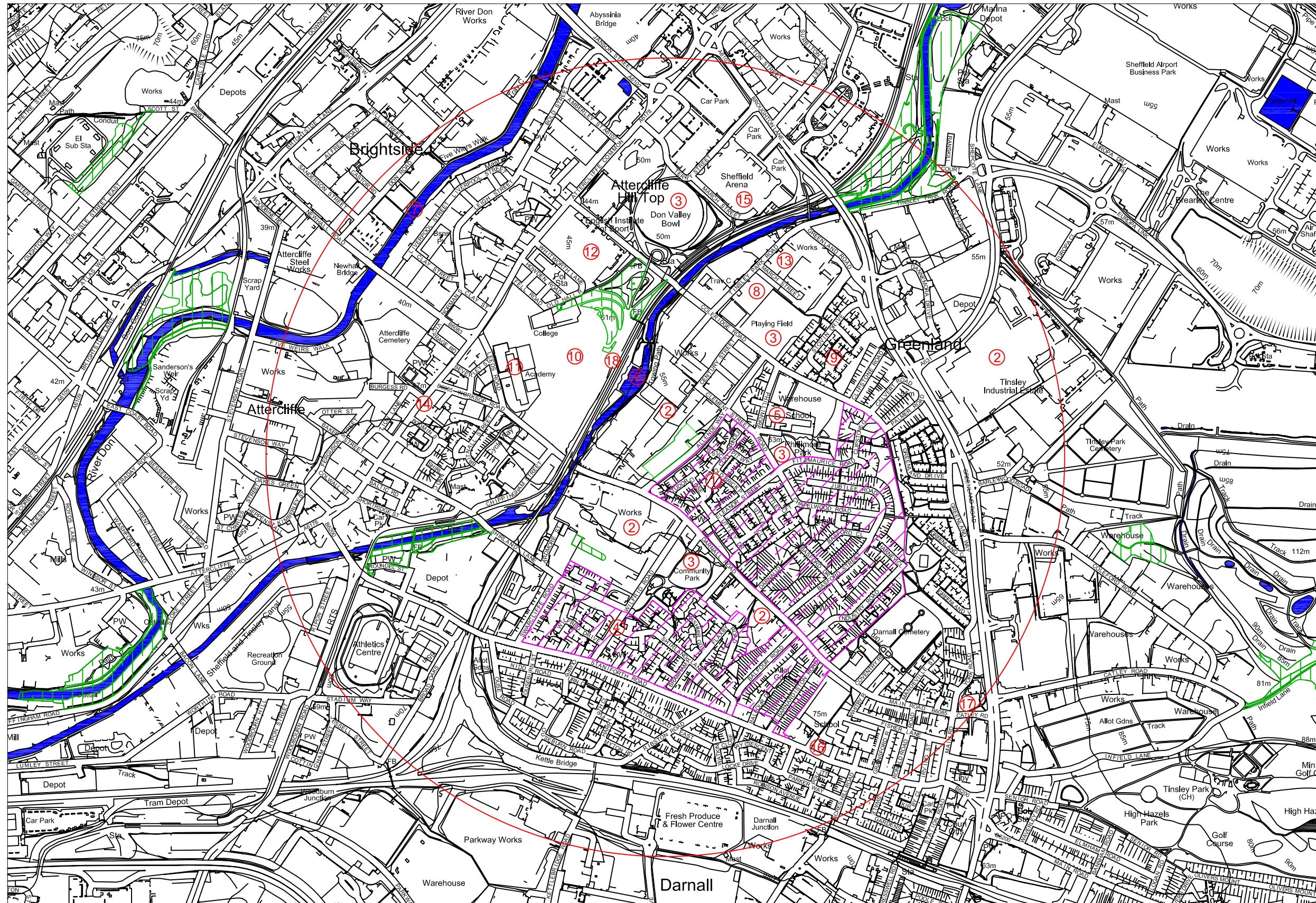
Title  
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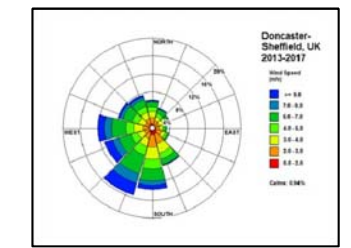
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Scale	Date	Nov'23	Drwg. No.	Rev.
1:1000@A3	Drawn	EB	Chkd. ML	203381/D/001





- Key:**
- Site Boundary
  - 1km Radius
- RECEPTORS:**
- ① Residential area North of Darnall Rd
  - ② Industrial Area
  - ③ Recreational Park
  - ④ Residential area South of Darnall Rd
  - ⑤ Phillimore Community Primary School
  - ⑥ Sheffield & Tinsley Canal
  - ⑦ River Don
  - ⑧ Avicenna Academy
  - ⑨ Residential area off Stovin Drive
  - ⑩ Sheffield Olympic Legacy Park
  - ⑪ Oasis Academy Don Valley
  - ⑫ English Institute of Sport Sheffield
  - ⑬ Bounce Sheffield Recreational
  - ⑭ Commercial / Industrial area off Attercliffe Rd
  - ⑮ Utilita Arena Sheffield
  - ⑯ Al-Mahad Al-Islami Girls School
  - ⑰ Darnall Health Centre
  - ⑱ Critical Infrastructure
- ▭ Priority Habitats - Deciduous Woodland
  - ▭ Residential Receptors
  - ▭ Surface Water Bodies



Rev.	Details	Date	
		Chkd.	

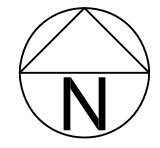
Project  
**203381**  
 Brocklebank Soil Washing Facility

Title  
**Receptor Plan**

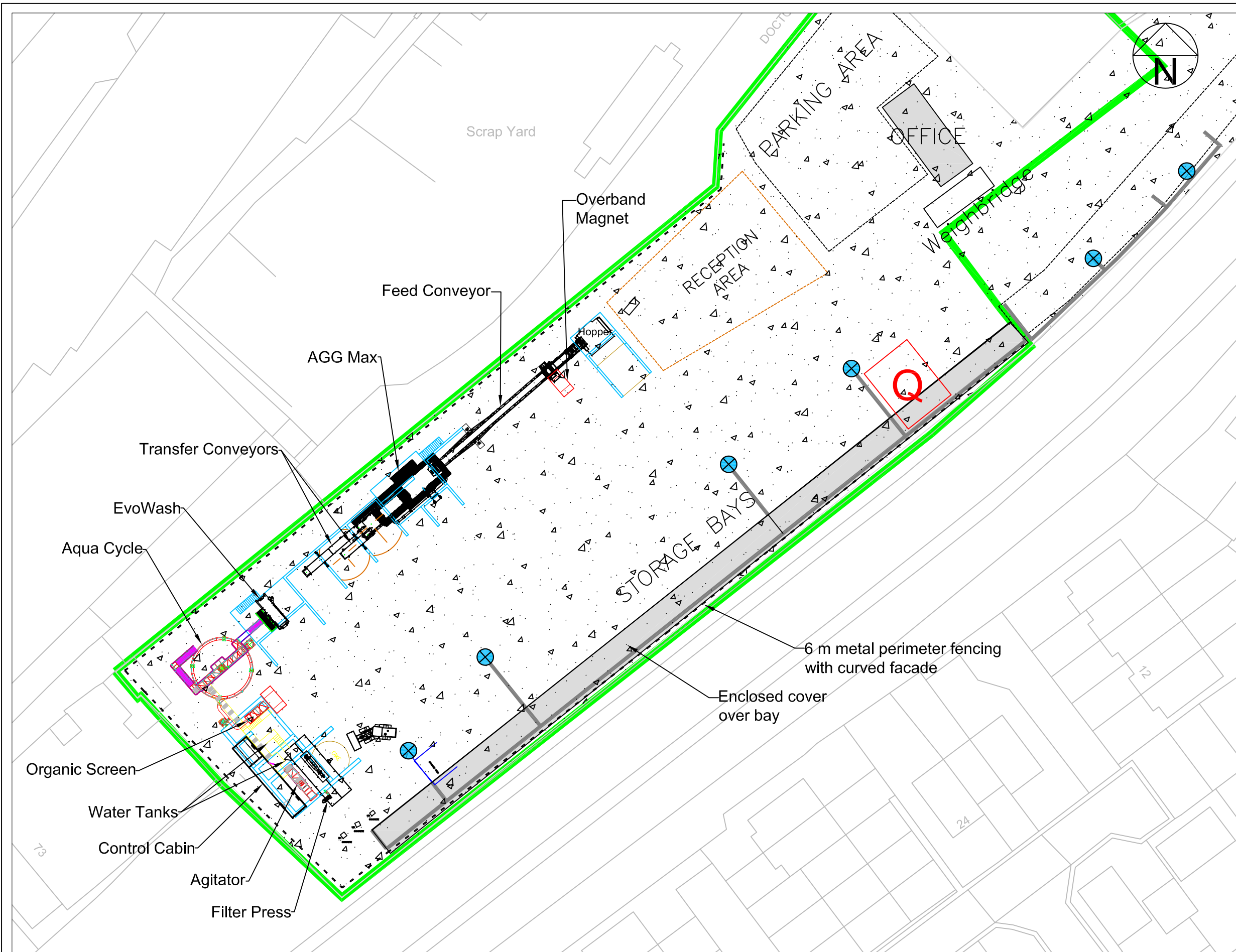


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	Drawn KE	Chkd. EB	







- Key:**
- Permit Boundary
  - ◇ Skip Container
  - Q Quarantine Area
  - ⊗ Fixed Nozzle Misting System
  - - - 6 m high metal perimeter fencing

Rev.	Details	Drawn Chkd.	Date
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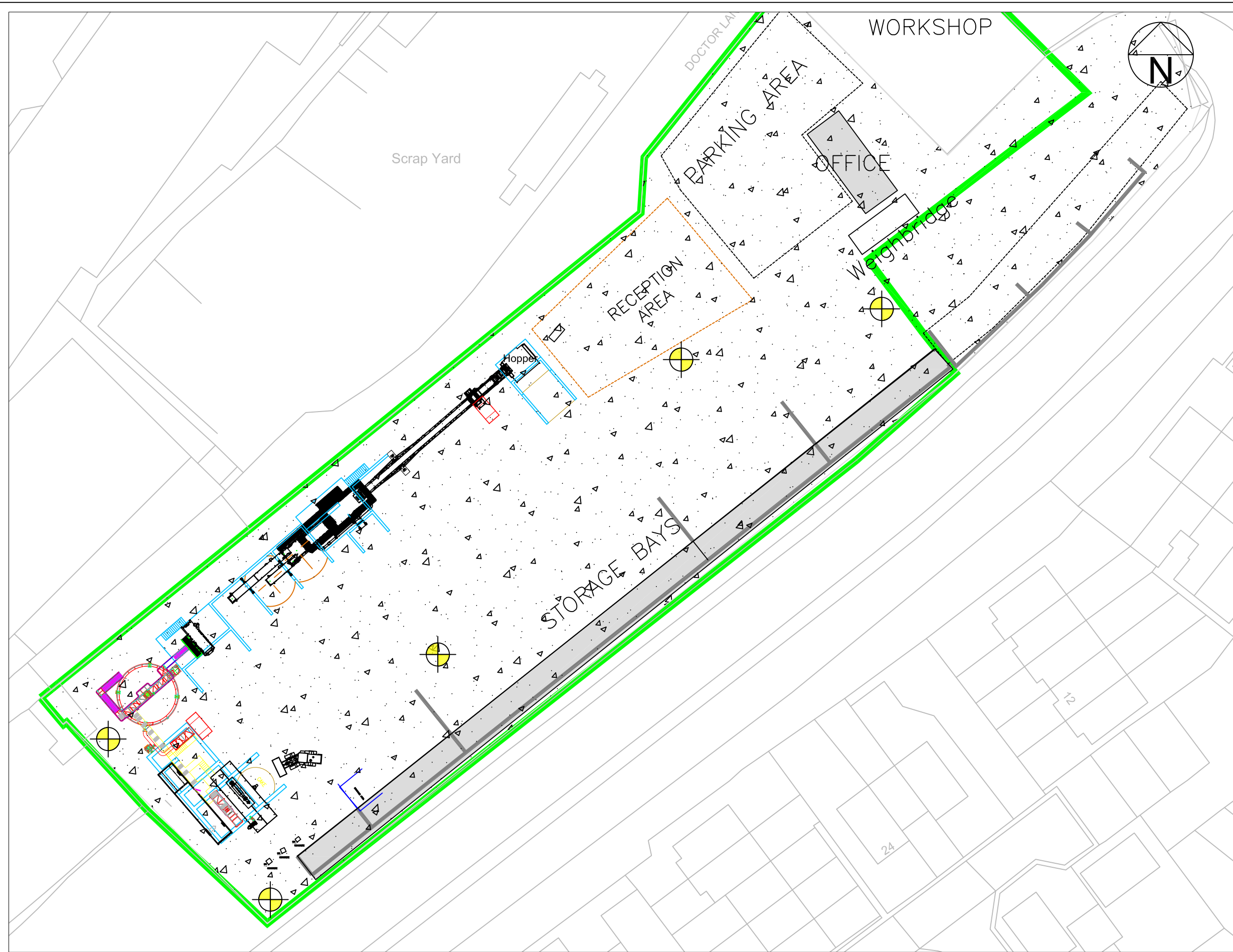
Project  
 203381  
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Title  
 Site Layout Plan



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1:500@A3	Drawn	KE	Chkd.	EB
			203381/D/003	



**Key:**

-  Permit Boundary
-  Dust / Noise Qualitative Monitoring Points



Rev.	Details	Drawn Chkd.	Date
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Project  
 203381  
 Brocklebank Soil Washing Facility

Title  
 Site Monitoring Plan



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# Brocklebank, Allende Way

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## Appendix A Particulate Emission Risk Assessment



# Brocklebank, Allende Way

Source	Pathway	Receptor	Type of impact	Where relationship can be interrupted
<p>Dust, mud and debris from vehicle movements</p> <p>Inert waste falling from front loader during handling</p>	<p>Tracking dust on wheels and vehicles, then mud dropping off wheels/vehicles when dry and particulates becoming airborne</p>	<p>Surrounding receptors listed in Table 2</p>	<p>Visual soiling, also consequent resuspension as airborne particulates</p>	<p>Site wide speed limit set at 10 mph for all HGVs.</p> <p>Dust and debris on highway and site running surfaces are monitored visually by the Site Manager and/or nominated site operative on a daily basis and a road sweeper is used accordingly. There is a dedicated roadsweeper on site.</p> <p>All drivers delivering waste are subject to signage reminders of speed limit, dust controls and by the operator at the weighbridge. Drivers under the Operator's primary control are subject to a site induction and toolbox talks.</p> <p>Plant Operatives take care not to overload buckets during loading to reduce the likelihood of waste deposit on concrete running surfaces. Waste swept up following loading by road sweeper and/or hand brush.</p> <p>Concrete running surfaces are wetted by the dust suppression system to reduce dust generation</p> <p>Weather and particulate emissions will be monitored and site operations limited accordingly</p> <p>If road sweeping fails to control mud on the road, all lorries to have wheels manually cleaned prior to leaving site</p> <p>Clearing of debris by front loader at the start and end of each shift and as identified during visual inspection.</p> <p>Vehicles are sheeted upon arrival. Vehicles temporarily uncover for visual inspection, then re-cover. Vehicles uncover and unload at feedstock area. Vehicles are sheeted on departure.</p>
<p>Tipping, storage and processing of waste</p>	<p>Escape from enclosures and subsequent atmospheric dispersion</p>	<p>Surrounding receptors listed in Table 2</p>	<p>Airborne particulates</p>	<p>On arrival, relevant paperwork is presented at the site office for initial checks. Any discrepancies are resolved before the waste is accepted on site.</p> <p>A visual load inspection takes place before the waste is unloaded, by a technically competent site operative or other designated person, to ensure consistency with the waste transfer note. The waste is also inspected immediately after offloading. In the event of non-conforming waste, the waste is rejected prior to receipt or if deposited, the Operator contacts the waste producer and arranges the load to be returned.</p> <p>In the event the non-compliant material has to be tipped (cannot be returned immediately), the waste is placed in the quarantine area under dust suppression measures. The load is isolated.</p>



# Brocklebank, Allende Way

Source	Pathway	Receptor	Type of impact	Where relationship can be interrupted
				<p>Waste in the quarantine bay is removed within 1 week of receipt.</p> <p>During processing, waste is subject to water sprays and submersion in water, thereby inhibiting potential for dust generation. It is by nature a wet process.</p> <p>Waste and recovered materials are stored in bays and subject to wetting by dust suppression infrastructure.</p> <p>Stockpiles are managed to reduce the potential for movement and dust generation. Stored wastes and materials will be lightly compacted to ensure surface cohesion.</p> <p>Drop heights will be minimised during loading and double handling will be avoided wherever possible.</p> <p>Perimeter cladding around the site and canopy above most storage bays reduces the potential for airborne dust to leave site.</p> <p>Stored waste is given protection from prevailing winds by a minimum of 4 m high cladding on the western site boundary, the filter press housing and adjacent buildings to the south and west.</p> <p>Stockpiled material is wetted to reduce potential for dust generation from stored materials and to intercept any dust arising from loading operations.</p>