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DUST EMISSIONS MANAGEMENT PLAN

for
MORLEYS QUARRY
ASTLEY, GREATER MANCHESTER

Report No 151/2

May 2025

For

ASTLEY SAND & AGGREGATES LIMITED
Astley House
Lower Green Lane
Astley
Greater Manchester
M29 9JZ

DOCUMENT CONTROL

DOCUMENT TITLE	Dust Management Plan
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1. INTRODUCTION

1.1 Report Context

1.1.1 Starling Environmental Limited (SEL) has been commissioned by Astley Sand and Aggregates Limited (the operator) to prepare a Dust Emissions Management Plan (DEMP) to accompany an environmental permit variation application for their aggregate recycling facility located at Morleys Quarry, Astley, Manchester, M29 7EW.

1.1.2 The site is regulated under permit EPR/LP3597SR which allows two separate activities; inert landfill and SR2010 No12 for the treatment of waste to produce soil, soil substitutes and aggregate. This allows processing of waste by sorting, separation, screening, crushing and blending.

1.1.3 The operator would like to vary the SR activity to a bespoke activity to increase the treatment and storage capacity as follows:

- Increase annual throughput from 75,000 tonnes to 300,000 tonnes per year
- Increase storage capacity from 40,000 tonnes to 60,000 tonnes

1.1.4 Currently, construction, demolition and excavation waste is imported and treated to produce soil, soil substitutes and aggregate products. Recycled aggregate products are produced in accordance with the WRAP End of Waste Criteria for the production of aggregates from inert waste[1].The operator would also like to reduce the number of waste types. There are no proposed changes to the activities or the permit boundary.

1.1.5 The aim of the DEMP is to identify the potential risks of fugitive dust emissions from operations at the site, consider the impact to identified receptors and set out the required mitigation measures for the management of any dust or other emissions arising.

1.1.6 The treatment and movement of wastes, storage of wastes and aggregate products, and associated HGV movements have the potential to generate dust emissions which may pose a risk of impacts from dust soiling, ecological impacts or risks to human health.

1.1.7 The use of treatment plant and HGVs also have the potential to generate exhaust emissions which may pose a health risk to surrounding receptors.

1.1.8 The DEMP is part of the Environmental Management System (EMS) for the site and is for use by management and site operators. A copy will be located within the site office.

[1] https://www.gov.uk/government/publications/quality-protocol-production-of-aggregates-from-inert-waste

1.1.9 The DEMP has been prepared using the following guidance:

- Environment Agency Risk Assessment for Environmental Permits[2]
- Institute of Air Quality Management (IAQM)[3]
- Control & Monitor Emissions for your Environmental Permit[4]

1.2 Site Location and Surrounding Area

1.2.1 Morleys Quarry is located immediately south of the A580 East Lancashire Road, midway between the Lately Common roundabout and the main junction at Astley, approximately 2.5 km south-east of Leigh and 15 km west of Manchester. The national grid reference for the recycling area is SJ 68812 99107. The site location is shown on Drawing No 151/01.

1.2.2 The site is in a rural location surrounded by mainly flat lying, open and featureless ground, the majority of which is farmland. There are a limited number of isolated residential properties in the vicinity of the site.

1.2.3 Approximately 820 m to the south is the European Habitats site of the Astley and Bedford Mosses. These are raised bogs and mosses which are designated as a Special Area of Conservation (SAC) and Sites of Special Scientific Interest (SSSI).

1.2.4 The closest residential properties are Morleys Hall and Morleys Hall Farm approximately 120 m from the site boundary to the northeast.

1.3 Layout

1.3.1 Access to Morleys Quarry is off the westbound carriageway of the A580 via Morleys Lane. The site is a sand quarry which is being progressively restored by inert landfill. The quarry/landfill extends to the west and south of the recycling area, which is situated on the eastern periphery of the site, outside the landfill footprint. The layout of the landfill site and location of the recycling area in relation to the landfill is shown on Drawing No 10543/41A.

1.3.2 The layout of the recycling area is shown on Drawing No 151/02. The recycling area is bounded by a vegetated screening bund to the east which is approximately 4 m high. The northern boundary (the site access road) is marked by a 2.5 m wooden fence and there is a mature strip of Priority Habitat woodland that separates the site from the A580. Concrete block bays are situated along the western and southern perimeters to house recycled products. Crushing and screening is carried out in the centre of the site. The

[2] https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit
[3] IAQM Guidance on the assessment of dust from demolition and construction, January 2014. Whilst this guidance is specifically for 'construction dust', in the absence of separate guidance for dust from waste or mineral sites, the IAQM guidance can be used as a starting point for waste dust assessment with appropriate modification or minor adjustments.
[4] https://www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit

weighbridges, site office, wheel wash and fuel store are located to the northwest of the recycling area.

1.3.3 The recycling area is surfaced with concrete and the surface drains into perimeter ditches which carry run-off to the landfill site settlement pond, before discharge to Moss Brook which is approximately 260 m south of the site. The discharge is permitted under the landfill activity and is monitored monthly. The settlement pond has been moved around site as landfilling progresses, but it currently occupies the southern extent of Cell 7B, adjacent to the quarry sump shown on Drawing No 10543/62A Monitoring and Extraction Point Plan. Drainage details for the recycling area are shown on Drawing No 151/02.

1.4 Background Air Quality

1.4.1 According to the DEFRA interactive map tool[5] the site is not located within an Air Quality Management Area (AQMA). The closest AQMA is associated with the A580 East Lancashire Road, which is adjacent to the northern permit boundary but approximately 80 m from the edge of the waste treatment area. This is designated only for Nitrogen Dioxide, not for PM_{10}.

1.4.2 The UK Ambient Air Quality Interactive Map[6] shows background concentrations of pollutants for the area which are presented in Table 1 along with air quality standards. Background concentrations of all pollutants are well below the air quality limit values for protection of human health.

Pollutant	**2023 Background concentration** µg/m³	**Air Quality Standard Limit value / objective** µg/m³
Nitrogen Dioxide (NO_2)	10.63	40*
Fine Particulate Matter (PM_{10})	11.36	40*
Very Fine Particulate Matter ($PM_{2.5}$)	6.48	10**

Table 1: Background Air Quality

Notes
***** The Air Quality Standards Regulations 2010 (amended in 2016)
****** The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023.

1.5 Climate Details

1.5.1 Figure 1 shows a wind rose for data collected at Manchester Airport which is the closest recording station at approximately 17.5 km to the southeast. The data is published online by Iowa State University.[7]

1.5.2 The wind rose shows that the prevailing wind direction is from the south and west with wind speeds most frequently between 10 to 14.9 mph, ie gentle to moderate breeze on the Beaufort scale. The strongest winds also typically

[5] https://uk-air.defra.gov.uk/aqma/maps/
[6] Data obtained using interactive background maps https://uk-air.defra.gov.uk/data/gis-mapping.
[7] https://mesonet.agron.iastate.edu/sites/locate.php?network=GB__ASOS

come from the south and west. Winds from the north and east are typically less frequent and much lower in strength.

1.5.3 With reference to the data it is considered that wind direction will be variable but with a prevalence towards the north and east. To the north is a 2.5 m wooden fence and to the east there is a vegetated bund approximately 4 m high, both of which will aid in screening any potential dust emissions.

1.5.4 The similarities and differences of the wind recording site have been reviewed. Manchester airport is approximately 70 m AOD and the site is around 20 m AOD. Although the airport is slightly higher elevation than the site, these are considered broadly similar as neither site is located either very close to sea level or very high above it. The wind recordings at the higher altitude recording site may be stronger than those experienced at the lower altitude on site, but it is not thought that this would be by a significant amount.

1.5.5 The prominent wind direction may be skewed slightly due to the openness to the south of the airport. Manchester airport is located close to the Cheshire Plains which are to the south, so it may record more wind from the southerly direction although the predominant wind direction for most of the UK is from the west.

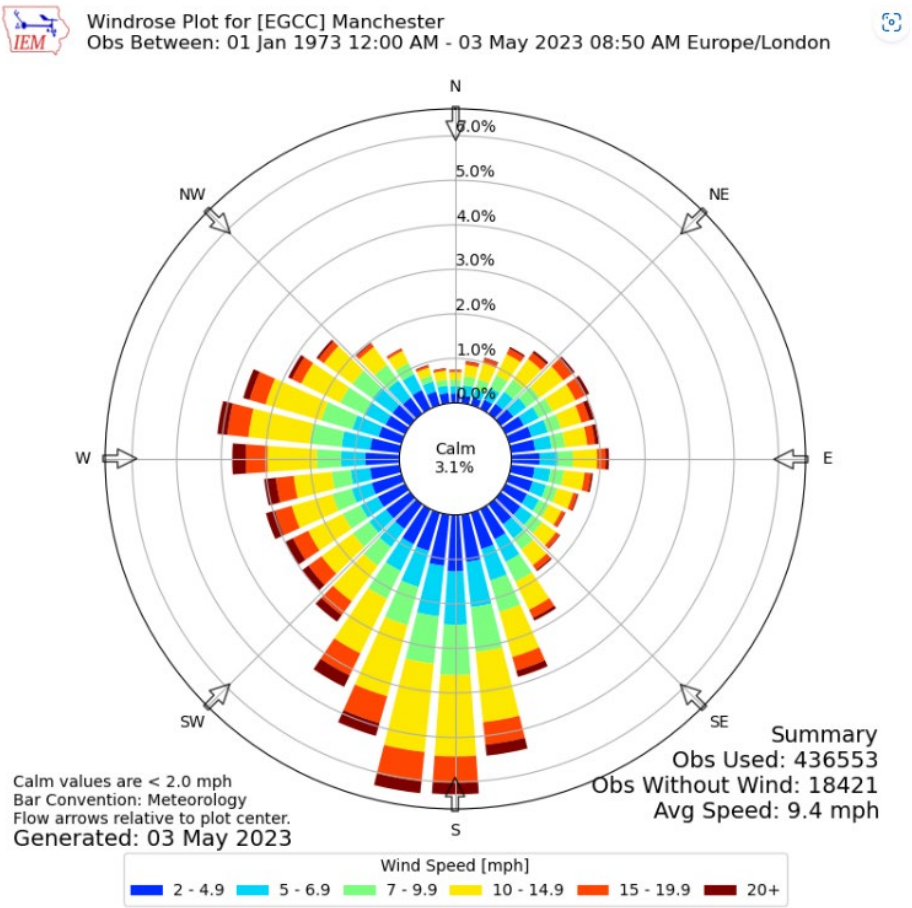


Figure 1: Wind Rose

Rainfall

1.5.6 Reference has been made to Met Office data for Woodford in Greater Manchester available on the met office website[8], This is the nearest climate recording station to the site at approximately 20 km south. Total average annual rainfall during the period 1991 to 2020 was 868 mm. The number of days of rainfall greater than or equal to 1 mm was 156 days, providing natural dampening for 42% of the year.

[8] https://www.metoffice.gov.uk/research/climate/maps-and-data/uk-climate-averages/gcqrqyr80

2. ASSESSMENT OF RECEPTORS

2.1 Receptors

2.1.1 EA Guidance requires that receptors within 1 km of the site that may be impacted by dust emissions are identified, and that a further assessment is made to identify which of these are sensitive. Drawing No 151/03 shows the site and surrounding area setting.

2.1.2 Table 2 lists the receptors located within 1 km of the site and their distance and direction from the site, along with the reference as per Drawing No 151/03.

2.2 Receptor Sensitivity Assessment

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

2.2.2 The sensitivity of each receptor to dust soiling effects, human health effects and the ecological effects of dust deposition has been assessed using the IAQM guidance[3].

2.2.3 The sensitivity of surrounding receptors to human health effects has been assessed based on 2023 background annual mean PM_{10} concentration at 11.36 µg/m^3 which is well below the annual mean Air Quality Objective of 40 µg/m^3.

Residential Receptors

2.2.4 There are a limited number of isolated residential properties and farms in the vicinity of the site, the closest being Morleys Hall and Morleys Hall Farm which are located approximately 120 m to the northeast. Whilst residential receptors are classified as ‘high sensitivity’ receptors, due to the distance from source (ie >100 m), these properties are assessed as having low sensitivity to both dust soiling and human health impacts. Furthermore, there is a 4 m high vegetated bund which will aid in screening any dust carried by the prevailing winds in this direction.

2.2.5 Residential properties in Bedford and Town Lane are located over 400 m from source so are also assessed as have low sensitivity to both dust soiling and human health impacts due to distance from source.

Ref	Receptor	Direction from	Approximate Distance from site boundary (m) to closest point	No of Receptors	Receptor Sensitivity		
					Dust Soiling	Human Health Impacts	Ecological Impacts
Residential							
1	Morleys Hall and Morleys Hall Farm	NE	120	1-10	Low	Low	-
	Surrounding Farmsteads or Country House	N, W, S, E	185 – 1 Km	1-10	Low	Low	-
	Properties in Bedford	N	450 – 1 Km	>100	Low	Low	-
	Properties in Town Lane	N	430 – 1 Km	>100	Low	Low	-
Industrial/Commercial							
2	Sewage Works	NE	365	1-10	Low	Low	-
Public Rights of Way							
3	Surrounding Footpaths	N, W, S, E	Adjacent – 1 Km	10-100	Low	Low	-
Amenity/Recreation							
4	Golf Range	N	350	10-100	Low	Low	-
	Leigh Cemetery	N	850	10-100	Low	Low	-
Water Features							
5	Farm Drains	N, W, S, E	Adjacent – 1 Km	-	Low	Low	-
	Netherbarrow Brook	W	50	-	Low	Low	-
	Bridgewater Canal	N	260	-	Low	Low	-
	Moss Brook	S	290	-	Low	Low	-
	Town Brook	E	620	-	Low	Low	-
	Bedford Brook	W	770	-	Low	Low	-
	Astley Brook	NE	790	-	Low	Low	-
Ecological Sites/Habitats							
6	Priority Habitat Woodland	NE, SW, S	On Site - 720	-	-	-	Low
	Astley & Bedford Mosses (SSSI) & Site of Biological Importance	S	820	-	-	-	Low
	Manchester Mosses (SAC)	S	820	-	-	-	Low

Table 2 (continued over): Potential Receptors Within 1 km

Ref	Receptor	Direction from	Approximate Distance from site (m)	No of Receptors	Receptor Sensitivity		
Educational Institutions							
7	St Mary's Catholic High School	NE	775	>100	Low	Low	-
	Bedford High School	NW	940	>100	Low	Low	-
Major Roads/ Transport Links							
8	East Lancashire Road (A580)	N	Adjacent	>100	Low	Low	-
Hospitals/Health Care Institutions							
-	None identified	-	-	-	-	-	-

Table 2 (continued): Potential Receptors Within 1 km

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

Commercial/Industrial Receptors

2.2.6 The only identified commercial/industrial receptor identified within 1 km of the site is the sewage works approximately 365 m to the northeast. The IAQM consider places of work as being 'medium sensitivity' receptors to both dust soiling and human health effects, however due to the distance from source there is very low risk of dust impacts for this receptor.

Public Rights of Way

2.2.7 There are a number of public footpaths in the area. In accordance with IAQM, receptors where human exposure is transient (eg. footpaths and roads) are considered as having low sensitivity to both dust soiling and human health impacts.

Amenity/Recreation

2.2.8 There is a golf range approximately 350 m to the north and Leigh Cemetery is 850 m also to the north. These amenity/recreational receptors are considered as having low sensitivity to both dust soiling and human health impacts due to distance from source.

Water Features

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

Designated Sites/Ecological Receptors

2.2.10 There is a strip of Priority Habitat woodland located on the site in the north bordering East Lancashire Road, and other small patches around Morley Hall and along Netherbarrow Brook. As these are not nationally designated sites, they are classified by the IAQM as having low sensitivity to ecological effects from dust deposition.

2.2.11 Manchester Mosses are located approximately 820 m to the south of the site and are designated as a SAC. This habitat is also designated as a SSSI and a SBI 'Astley and Bedford Mosses'. Due to the distance from site, these designated sites are assessed as having negligible risk from impacts from potential dust emissions generated at the site.

Schools/Colleges

2.2.12 There are two identified schools or colleges within 1 km of the site but due to their distance from site (ie 775 m and 940 m), these receptors are assessed as having negligible risk from any dust generated at the site.

Transport Links

2.2.13 In accordance with the IAQM guidance, receptors where human exposure is transient (eg. roads) are considered as having low sensitivity to both dust soiling and human health impacts.

Hospitals/Care Homes

2.2.14 There were no hospitals or care homes identified within 1 km of the site.

2.3 Other Sources of Dust

2.3.1 The site is situated in a rural area, predominantly surrounded by fields which may potentially contribute to local sources of dust, especially during prolonged periods of dry weather.

2.3.2 In addition the East Lancashire Road (A580) may also contribute to additional windblown dust in the area from vehicles.

2.3.3 The quarry and landfill activities may also be a source of dust.

3. CONTROL OF EMISSIONS

3.1 Waste Deliveries

3.1.1 All waste deliveries will be by road. HGVs will enter the site via the gated entrance off the westbound carriageway of the A580 via Morleys Lane. Haulage operators are instructed that all loads should be covered prior to entering site.

3.1.2 Waste acceptance procedures are detailed in the EMS which include;

- Ensuring that all HGVs transporting waste into or out of the site will be covered;
- If a load is found to be dusty on initial inspection, it will be dampened down before and during tipping.

3.1.3 Haulage operators removing aggregate products from site are instructed to cover loads on leaving the site.

3.2 Processing

3.2.1 Treatment comprises sorting, separation, crushing and screening. Hardcore will be crushed prior to screening. Products are manufactured according to a Quality Protocol and tested in accordance with end of waste requirements. Screened soil stored whilst being tested for landfill acceptance, and dispatched to the landfill if it passes inert WAC.

3.2.2 The annual permitted throughput for the site will be 300,000 tonnes per annum. The predominant waste types are concrete, bricks, soil and stones from construction, demolition and excavation works.

3.2.3 Proposed waste types that will be subject to crushing and screening are listed in Table 4 below. SR2010 No12 has been withdrawn and replaced by new standard rules set, SR2022 No1. All of the waste types listed in Table 3 are listed in SR2022 No1.

Waste Code	Description
01 04 08	Waste gravel and crushed rocks other than those mentioned in 01 04 07 *May include excavation from mineral workings*
01 04 09	Waste sand and clay *Must not include contaminated sand*
10 01 01	Bottom ash and slag only
10 01 15	Bottom ash and slag from co-incineration other than those mentioned in 10 01 14
10 12 08	Waste ceramics, bricks, tiles and construction products (after thermal processing)
10 13 14	Waste concrete only
17 01 01	Concrete *Must not include concrete slurry*
17 01 02	Bricks
17 01 03	Tiles and ceramics

Table 3 (continued over): Proposed Waste Types

Waste Code	Description
17 01 07	Mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02 02	Clean glass Must not include fibreglass or glass fibre
17 03 02	Bituminous mixtures other than those mentioned in 17 03 01 Only bituminous mixtures from the repair and refurbishment of the asphalt layers of roads and other paved areas (excluding bituminous mixtures containing coal tar and classified as waste code 17 03 01) Must not include coal tar or tarred products Must not include freshly mixed bituminous mixtures
17 05 04	Soil and stones other than those mentioned in 17 05 03 Must not contain any contaminated soil or stone from contaminated sites
17 05 06	Dredging spoil other than those mentioned in 17 05 05 Only inert aggregate from dredgings Must not contain contaminated dredgings Must not contain fines
17 05 08	Track ballast, soil and stones other than those mentioned in 17 05 07 Must not contain soil and stones from contaminated sites
17 09 04	Mixed construction and demolition waste other than those mentioned in 17 09 01, 17 09 02 and 17 09 03 mixed construction and demolition waste, limited to that generated from utilities trenching, consisting of sub base aggregates, and containing only material that would be described as 17 01 01, 17 03 02 and 17 05 04
19 12 05	Glass Does not include glass from cathode ray tubes
19 12 09	Minerals (eg sand, stones) Must not contain contaminated concrete, bricks, tiles, sand, stone or gypsum from recovered plasterboard
19 12 12	Incinerator bottom ash, aggregate only
20 02 02	Garden and park waste (including cemetery waste) – soil and stones Must not contain contaminated stones from garden and parks waste

Table 3 continued: Proposed Waste Types

3.3 Avoidance and Containment

3.3.1 The site will operate with short run conveyors on the crusher output feed and the screening plant. These will not be enclosed as the crusher has a water spray for dust suppression and mobile dust suppression will be used when screening is being carried out in dry weather. These measures are considered adequate to control dust emissions without enclosing the conveyors.

3.3.2 There are no silos on site for storage of powders or dusty material. Powders and dust will not be accepted, only the waste types listed in Table 3 above.

3.3.3 The recycling area is contained as follows:

- 4 m high vegetated screen to the east
- 2.5 m concrete block storage bays along the southern and western perimeters
- 2.5 m high wooden fence along northern boundary with the access road

3.3.4 The prevailing wind direction is from the south and west. The concrete block walls of the storage bays situated along the southern and western perimeters will protect the waste and product stored in them from being wind whipped. The 4 m high vegetated screen to the east will further prevent any windblown dust from leaving site towards the east. The fence along the northern boundary will reduce the risk of any dust being blown off site to the north.

3.4 Minimisation of Drop Heights

3.4.1 Minimum drop heights for conveyors will be set as the minimum height required to clear the conveyor and allow a reasonable stockpile to accumulate beneath the conveyor. Material will not be unnecessarily thrown up into the air. The height of the conveyors will be checked as part of the daily start up checks and adjusted downwards if they are at an angle that is more than necessary.

3.5 Prevention of Mud on the Highway

3.5.1 The site is completely concrete surfaced. As the site is all concrete surfaced, the deposition of mud on the highway from HGVs is not considered to be a significant issue.

3.5.2 The exit road is configured so that all HGVs leaving the site are routed through the wheel wash before existing the site. The access road and wheel washing area is concrete surfaced.

3.5.3 The access road and site surface will be inspected daily by the site foreman and if staining is observed leaving the site a road sweeper will be deployed off-site.

3.6 Speed Restrictions

3.6.1 A site speed limit of 10 mph is in place to prevent raising dust.

3.7 Material Handling

3.7.1 Movement of material at the site will be conducted by trained operators who are aware of the requirement for careful movement and avoidance of double handling.

3.8 Storage

3.8.1 Incoming waste is stored in the reception area in a free-standing stockpile, from where it is loaded into the crusher and screener. The stockpile is screened by the position of the bund on the east and the fence to the north.

3.8.2 Material will be stored in 3 sided concrete walled bays. The bay walls will provide protection from the wind from 3 directions, ie. wind will blow into either of the 3 walls and be prevented from blowing the material onwards by the bay walls. If wind blows into the open front of the bay, it may blow the material to the back of the bay but the bay wall will prevent it from being

blown onwards. A freeboard of 0.5 m at the top of the bay will prevent material being blown over the top of the bay walls.

3.9 Dust Suppression Equipment

3.9.1 The crushing plant includes integrated dust suppression with a water spray bar mounted on the output conveyor. This will be in operation when the crusher is in use. It provides suppression in two ways – dampening as material goes through the crusher and knock down of dust generated during the crushing operation.

3.9.2 Mobile dust suppression is provided by a water bowser. This will be used to dampen the screening operation on dry days (ie. when not raining). The bowser will be placed next to the screening operation and material will be dampened prior to screening (if it is not already damp). During screening in dry weather, the bowser will be used to spray a water mist via the rain gun attachment to knock down any dust that is generated during processing.

3.9.3 Moisture content of stockpiles of incoming waste and processed products will be manged by damping down on dry days (ie. when not raining) using the mobile dust suppression unit described above. Damping will be recorded in the site diary to confirm it has been carried out. The bowser is a towed tank and the rain gun is a high-pressure cannon that is capable of reaching 5 m and can cover the full height of all stockpiles. As it is mobile it can be moved around the site and located anywhere on site. The bowser will be moved around throughout the day and placed in front of the various stockpiles and the rain gun attachment will be used to spray the stockpiles in a 5 m arc.

3.9.4 The operator will check that the material has been damped sufficiently before moving on to the next stockpile. Soil will be considered adequately damp when it can be squeezed together. Aggregate products will be considered adequately damp when they are visibly damp. If water is draining out of the stockpiles this is too much as the intention is for them to be damp, not wet and shedding water.

3.9.5 The locations where the suppression unit will be placed will be at strategic points around the site which include:

- next to the screening plant
- next to the incoming waste stockpile
- next to the product stockpiles

3.9.6 A road sweeper will be used to dampen and clean site roads. The sweeper has a washing attachment which sprays the surfaces as it sweeps so will serve as a dust suppression unit for the access road and the yard.

3.9.7 The site manager (SM) will conduct the daily checks and then instruct operators where to set up the mobile dust suppression unit if it is not raining. The SS will also instruct on whether to deploy the sweeper following inspection of the access road and site surface. The dust suppression units will

be set up and operated by the site operatives. The road sweeper will be operated by the sweeper operative on instruction from the SM.

3.9.8 The triggers for use of dust suppression will be:

- If it is not raining, and has not rained overnight, all stockpiles will be damped by moving the mobile unit around the site during the day
- When the screening plant is in operation during dry weather the mobile bowser will be used
- When the crushing plant is in operation the integral dust suppression will be in use
- If incoming waste is flagged as dusty on first unsheeting and inspection

3.9.9 The suppression unit will be serviced and maintained in working order. Replacement parts and servicing will be provided by an approved supplier with established channels of communication so that the operations manager (OM) can arrange for repairs or replacements without delays.

3.9.10 The bowser will be refilled from the landfill settlement pond to the west of the site on the landfill at the end of each working day, ready for the next day. It will be parked/stored next to the office when not in use.

3.9.11 If no water was available on site, water would be hired in by tanker as detailed in section 4.4 Contingency Actions, and if no water was available for hire, waste processing would be suspended as a backstop measure.

3.9.12 In the event of a power failure the dust suppression could still operate as it would not require mains electricity supply, it is operated hydraulically and using a diesel tractor unit.

3.10 Water Supply

3.10.1 Water used for dust suppression is taken from onsite settlement pond on the landfill.

3.10.2 Mains water is also available on site which can be used to top up the bowser. The mains water tap is shown on the site layout plan.

3.10.3 In the unlikely scenario that mains water is unavailable and water in the settlement ponds is unattainable, and the resulting site conditions gave rise to a high risk of dust emissions, waste operations would be temporarily suspended.

3.10.4 If mains water is to be unavailable for an extended period, a water tanker will be brought in so that operations can continue.

3.11 Mobile Plant and Equipment

3.11.1 Waste treatment plant includes mobile crusher and screening plant which operate on diesel engines. Gaseous emissions will be produced by the internal combustion engines.

3.11.2 Mobile plant listed below will be used at the site. The operator will ensure all mobile plant used at the site will be predominantly higher tier emissions ratings plant.

- Loading shovel
- Crusher
- Screener
- Tracked 360 excavator

3.11.3 IAQM guidance states that mobile plant are *'unlikely to make a significant impact on local air quality'* and would not need to be assessed as part of an Air Quality Assessment.

3.11.4 Regular servicing of plant, vehicles and machinery will be carried out according to applicable legislation. If replacement of plant/machine is required then the highest emission standard possible available will be purchased.

3.11.5 Daily checks on vehicles and plant are carried out by operatives before use and these are recorded on a check sheet.

3.11.6 All drivers of mobile plant and operators of stationary plant will be fully trained in the correct and safe use of the relevant machinery to ensure that the operating techniques are undertaken in line with the guidance within the manufacturers' instructions.

3.11.7 Staff will be trained on the use of mobile plant to reduce emissions where possible, including anti-idling.

3.11.8 Plant and machinery will be refuelled from the on-site bunded fuel tank.

3.12 Housekeeping

3.12.1 A road sweeper will be used to clean the site entrance area and the off-site road. The yard surfaces will be scraped clean using the loading shovel.

3.12.2 Table 5 below details the housekeeping schedule that is in place.

Frequency	Action
Daily	Visual inspection for mud on road, dust on surfaces and plant – any actions required are recorded in the site diary Shovelling/tidying debris using loading shovel Road sweeper cleans site entrance and concrete surfaces
Weekly	Road sweeper deployed to clean offsite roads
Monthly	Wheel wash cleaned out

Table 4: Housekeeping Schedule

3.13 Assessment of Dusty Waste

3.13.1 Table 5 below lists waste types with an assessment of their dust potential. The table details the dust potential of the waste as received and in storage and also during processing.

3.13.2 Any waste which has the potential to dry out and become friable, producing fine particles capable of being windblown is classed as ‘high’ eg soil. Waste which consists of larger and heavier components such as brick, concrete or tiles and would not dry out and become windblown are classed as ‘low’. Waste which is a mixture of these types is classed as ‘medium’.

Waste Code	Description	Dust Potential on receipt and in storage	Dust potential in treatment
01 04 08	Waste gravel and crushed rocks other than those mentioned in 01 04 07	low	high
01 04 09	Waste sand and clay	high if the waste is dry	high
10 01 01	Bottom ash and slag only	high	high
10 01 15	Bottom ash and slag from co-incineration other than those mentioned in 10 01 14	low	high
10 12 08	Waste ceramics, bricks, tiles and construction products (after thermal processing)	low	high
10 13 14	Waste concrete only	low	high
17 01 01	Concrete	low	high
17 01 02	Bricks	low	high
17 01 03	Tiles and ceramics	low	high
17 01 07	Mixtures of concrete, bricks, tiles and ceramics	low	high
17 02 02	Glass – not including fibreglass or glass fibre	low	low
17 03 02	Road base and road planings other than those containing coal tar or freshly mixed bituminous substances	medium	high
17 05 04	Soil and stones	high if the waste is dry	high
17 05 06	Dredging spoil (not containing contaminated dredgings or fines)	high if the waste has dried out	high
17 05 08	Track ballast, soil and stones other than those containing dangerous substances	low	high
17 09 04	Mixed construction and demolition waste, limited to that generated from utilities trenching, consisting of sub base aggregates, and containing only material that would be described as 17 01 01, 17 03 02 and 17 05 04.	medium – this waste is a mix of subsoil and aggregates	high
19 12 05	Glass	low	low
19 12 09	Minerals (eg sand, stones)	high	high
19 12 12	Incinerator bottom ash, aggregate only	high	high
20 02 02	Garden and park waste (including cemetery waste) – soil and stones	high if the waste is dry	high

Table 5: Assessment of Dusty Waste Types

3.14 Rejection of Dusty Waste

3.14.1 Waste would not be rejected due to dust as soils can easily become dry in the summer months. Each load is assessed as it is unsheeted and if it raises dust immediately then it is damped down both before and during tipping.

3.14.2 The waste producer will be contacted and asked to damp down material as it is loaded to prevent reoccurrence.

3.14.3 Whole loads of powders and dust will not be accepted and would be rejected after the visible inspection and before offloading.

3.15 Wheel Wash Procedure

3.15.1 A wheel wash is located in the north of the site for exiting HGVs as shown on the site layout plan. It is a drive through water bath with rumble strips on the bottom. HGVs will enter the site and follow the one way system via the weighbridge and waste reception area, then through the wheel wash to exit the site.

3.15.2 The area around the wheel wash and the entrance and exit roadways are concrete surfaced so vehicles do not exit the wheel wash onto unpaved, muddy ground. The site roads and access road will be swept daily using a road sweeper if required.

3.15.3 The wheel wash will be topped up with fresh water using the water bowser when the water level drops below the recommended fill level, although it will also be topped up naturally by rainfall. The silt at the bottom will be removed monthly.

3.15.4 The access road and site surface will be inspected daily by the site foreman and if staining is observed leaving the site then the wheel wash will be cleaned out and topped up with fresh water.

4. DUST AND PARTICULATE MANAGEMENT

4.1 Responsibility for Implementation of Plan

4.1.1 The Operations Manager (OM) has overall responsibility for the control of the waste operations at the site and is responsible for ensuring that the DEMP is implemented by all site staff. Qualifications for the role of OM will be a combination of time served, specific site experience and training. The individual will have had a number of years' experience in the waste industry, a knowledge of the site and its processes, an understanding of the business needs and understanding that permit compliance is integral to successful operation of the site.

4.1.2 The Site Manager (SM) will operate the site in accordance with the DEMP under instruction from the OM. The SM will have sound knowledge of site operations and understanding of how dust can be generated and controlled. The OM will also be responsible for managing the site in compliance with the permit. The SM will have the delegated authority to direct operations on site, to investigate any complaints, direct the use of dust suppression measures and to stop processing if required. Any complaints or incidents will be reported to the OM. The results of daily checks and monitoring will be discussed with the OM.

4.1.3 All training will be recorded and records will be maintained on site. The OM will:

- Ensure that the DEMP is effectively communicated, and that staff are competent to undertake their roles;

- Ensure that operations and management procedures outlined in this document are implemented and complied with;

- Ensure that the DEMP is reviewed annually, or following:
  - Permit variation
  - Accident, complaint or breach of permit
  - Any major changes to site operations

- Completion and storage of all required records for the DEMP.

4.1.4 The OM will delegate tasks to the SM (eg dust monitoring, use of water bowser for dust suppression) and to other members of the management team (eg.staff training).

4.1.5 Review of the DEMP will be carried out by the OM. Results of the review will be communicated from the OM to the General Manger, who with the senior management team will instruct a consultant to revise the DEMP accordingly.

4.2 Sources and Control of Dust/ Particulates

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

- Dust from HGV movements,
- Dust from tipping, movement, crushing and screening of imported wastes;
- Dust from stockpiled wastes/aggregates;
- Exhaust emissions from plant
- Exhaust emissions from HGV movements.

4.2.2 Surrounding farmland and the A580 may also be a source of dust/particulates, as could the landfill and quarrying activities.

4.2.3 Tables 6 and 7 below detail the sources of emissions at the site and include the pathways to identified receptors. Proposed mitigation and control measures are provided for each source-pathway-receptor linkage, and an assessment of overall risk is provided for each emission source.

Source	Pathway	Receptor	Type of Impact	Mitigation and Control Measures	Overall Risk
Mud: HGV movements, or from uncovered vehicles Brought out on wheels of vehicles and deposited off-site	Wheels and vehicles tracking mud on and off-site and dropping off when dry, then resuspension as airborne particles	Local residents Morleys Hall Priority Habitat Woodland A580	Dust deposition soiling surfaces Visible dust plumes Elevated PM_{10} and associated health impacts Ecological impacts	**Avoidance/ Containment:** Wheel wash for all exiting HGVs Concrete surface between access road and operational area where mud can be deposited and swept up before the vehicle reaches the highway. Limit vehicle speeds to < 10 mph. **Suppression:** Use of bowser to dampen site surfaces. Use of road sweeper to dampen roads. **Management Control (EMS):** Daily monitoring of off-site roads and use of road sweeper when monitoring dictates. Visual dust monitoring during daily checks. All vehicles will be covered before entering and leaving site.	**Low**
Dust /particulates: Generated from waste tipping, processing, movement and stockpiles storage	Atmospheric dispersion (wind-blown dust)	Local residents Morleys Hall Priority Habitat Woodland A580	Dust deposition soiling surfaces Visible dust plumes Elevated PM_{10} and associated health impacts Ecological impacts	**Avoidance/ Containment:** Fencing and bund along the northern and eastern boundaries will screen any dust blown from prevailing winds from the south and west. Minimise drop heights during tipping and movement of wastes/aggregates. Clean up any spillages that occur during material loading into vehicles. Careful placement of material onto the crusher/screener, into vehicles or stockpiles by trained operatives. **Suppression:** Use of mobile water bowser to dampen stockpiles if dust is being generated. Dust suppression system on crusher. **Management Control (EMS):** Visual dust monitoring during daily checks.	**Low**

Table 6: Assessment of Risks from Dust/Particulates

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

Table 7: Assessment of Risks from Gaseous Pollutants

4.3 Monitoring and Inspections

4.3.1 The SM or delegated representative will undertake daily on and offsite inspections for dust soiling of surfaces to monitor effectiveness of the DEMP. Inspection results will be recorded, and a record kept detailing weather conditions including wind direction. This will include a record of whether dust was observed at monitoring points N,S,E,W and any actions taken.

4.3.2 Inspection results will be recorded on the monitoring check sheet contained in Appendix C, including weather conditions. The checks will be made at dust monitoring points around the site boundary shown on Drawing No 151/02.

4.3.3 If monitoring has been delegated, monitoring results are reported to the SM. If visible dust is observed offsite, this will trigger the deployment of the road sweeper and use of dust suppression after review of the likely source of dust. Operatives will be trained to be more aware of dust potential during periods of strong winds and waste processing may be temporarily suspended.

4.3.4 Quantitative monitoring of dust is not proposed at this time due to the avoidance, containment and suppression mitigation measures in place. In addition, the site is not in an AQMA for dust and the background dust concentrations are low.

4.4 Contingency Actions

4.4.1 Actions Resulting from Monitoring or Complaints

4.4.1.1 In the event that dust/particulates or excessive vehicle emissions are perceived as a concern following monitoring or as the result of a complaint, the source will be investigated by the SM.

4.4.1.2 When investigating any such report, the following factors will be considered:

- Location of the source relative to receptors;
- Prevailing wind directions on site; and
- Dust/particulates and vehicle emissions from external source

4.4.1.3 Remedial actions will be undertaken on an escalating basis and include the following:

- Simple repairs or modifications to plant or machinery or switching off equipment;
- Deployment of road sweeper to clean and dampen site surfaces; and
- Use of water suppression on stockpiles.

4.4.1.4 The OM will co-ordinate more complex responses, which could include: review of customers at the pre-acceptance stage if certain hauliers continue to bring in mainly dusty loads or have excessive exhaust emissions;

implementing a local community engagement exercise; or liaising with regulators.

4.4.1.5 Any incidents, their outcomes and details of any remedial actions taken related to emissions will be recorded in the site diary and be reported to senior management.

Event	Action
Dust soiling on surfaces within site	- check if surfaces and stockpiles have been damped down, repeat if dry - check drop heights on conveyors are as low as possible - check locations outside of site boundary for off-site dust
Staining or debris along access road	- as determined by SM during daily inspection - deploy road sweeper - check the wheel wash and clean out
Visible dust plume being carried off site	-temporarily suspend operations to investigate source/cause of dust emission - repeat damping down of surfaces and stockpiles - suspension of treatment during strong winds if dust cannot be adequately contained (see definition of strong winds in paragraphs 4.4.2.3 and 4.4.2.4)
Complaints received from neighbours	- investigate the weather conditions on the day of complaint - check plant settings and identify any issues or errors - depending on cause of complaint carry out appropriate action listed above - report back investigation findings and action taken to complainant

Table 8: Contingency Actions

4.4.2 Unfavourable Conditions

4.4.2.1 Unfavourable conditions are those in which the site cannot operate under optimum conditions and include unfavourable operational circumstances as well as conditions due to adverse weather and other natural causes. These are listed in Table 9 below.

Event	Action
Staff shortage causing processing delays and backlog of material	- hire in suitable agency staff - if storage area full, divert incoming material to alternative sites to prevent excessive build up of material on site - apply daily dust suppression to stockpiles whilst working to clear backlog
Over supply of incoming waste causing backlog and overfull storage areas	- divert incoming material to alternative sites to prevent excessive build up of material on site - inform logistics team so they can find alternative sites whilst the backlog is cleared - apply daily dust suppression to stockpiles whilst working to clear backlog
Breakdown/malfunction of dust suppression equipment	- Instigate repair immediately - If equipment cannot be repaired within 24 hours then hire in replacement equipment - suspend if conditions are dry and dust is being raised on site
Breakdown of processing plant causing backlog of material and increase in stockpile sizes	- on-site engineer to instigate repairs immediately - if storage area full, divert incoming material to alternative sites to prevent excessive build up of material on site - apply daily dust suppression to existing stockpiles whilst waiting to restart processing
Receipt of extra dusty waste	- damp down before tipping and during tipping - if waste is predominantly dust the load will be rejected and reloaded - contact customer liaison to prevent future import of this material
Generation of more dust than anticipated during processing	- if material generates more dust than anticipated during processing, suspend processing and review - direct dust suppression equipment to the area before recommencing - resume processing in small batches to maximise control of dust, suspend processing if dust cannot be controlled - remove material from site as a backstop option if it cannot be processed without causing pollution off site - contact customer liaison to review future acceptance of such waste
High Winds	- suspend processing if dust is being carried across site by strong winds
Heavy rain causing ponding of surface water preventing access	- suspend processing and pump water out of the waterlogged area to allow access
Failure of water supply	- hire in water tanker - suspend operations in dry conditions and wait for water supply
Drought conditions causing restriction of mains water	- operations will be scaled back and water conserved for use in suppression as a priority - if water supply fails completely and material becomes dry and windblown, stockpiles will be covered to prevent escape of dust

Table 9: Unfavourable Conditions

4.4.2.2 The OM will ensure that the site is equipped with contingency provisions for replacement plant and parts relating to emissions management equipment (eg suppression sprays and road sweeping equipment). The aim will be to repair equipment within 24 hours of breakdown. If key suppression equipment cannot be repaired or replaced within 24 hours, or other failure occurs (eg freezing water), the OM will consider whether to suspend processing operations based on the potential for dust emissions as a result of the breakdown.

Adverse Weather

4.4.2.3 Approximation of wind strength is by the physical effects on site. A force 6 strong breeze on the Beaufort Scale is described as 'large branches in motion; whistling heard in telegraph wires; umbrellas used with difficulty'. This would be the conditions under which external operations would be suspended if dust was being carried across the site.

4.4.2.4 A force 7 near gale on Beaufort Scale is described as 'whole trees in motion; inconvenience felt when walking against the wind'. Under these conditions all external processing would be suspended.

Out of Hours Arrangements

4.4.2.5 The site operates Monday to Saturday and is closed on Sundays and Bank Holidays. In dry weather the stockpiles and surfaces will be damped on Saturdays before closing up for the weekend.

4.4.2.6 In prolonged dry spells the SM will visit the site and damp down on Sundays or bank holidays.

Failure of Water Supply

4.4.2.7 If the mains water supply fails then water tankers will be hired in for suppression.

Emergency Procedures

4.4.2.8 If dust control methods fail, including contingency actions, then site operations will be suspended and the Environment Agency will be contacted to discuss the way forward.

5. REPORTING AND COMPLAINTS PROCEDURES

5.1 Reporting of Complaints

5.1 Complaints can be reported using the information provided on the site notice board at the site entrance which includes two telephone numbers: one for use during operational hours and another out of hours emergency contact number.

5.2 All complaints received will be recorded on a complaints form contained in Appendix D and investigated by the SM. The following information will be recorded:

- Date and time
- Name and address of complainant
- Details of complaint
- Weather and wind direction at the time
- Operations underway at time of complaint
- Results of investigation by the SS
- When reported to senior management
- When reported back to complainant

5.3 If the investigation finds that remedial action or repairs are required then these will be carried out without delay. The results will be reported back to the complainant directly and recorded in the site diary.

5.4 A record of incidents, accidents or non-conformances will be kept and reported. This includes the following information:

- Date and time of incident
- What happened
- What caused it
- Who was involved
- What action was taken
- Were external agencies involved
- Any changes that have been made to the procedures/ EMS to reduce recurrence of the incident

5.5 If numerous substantiated complaints are received the operations will cease whilst an investigation is carried out and the issue is rectified.

5.2 Management Responsibilities

5.2.1 The responsibility of handling complaints is with the SM with support from a OM. Incidents are investigated by the SM whereby rectifying action is determined.

5.3 Community Liaison

5.3.1 Contact numbers are displayed on the notice board at the site entrance as detailed in paragraph 5.1. These details can be used by members of the community to contact the operator both during working hours and when the site is closed. The company website also displays a phone number and email address.

5.3.2 Liaison with immediate neighbours would be undertaken by phone call or by visiting in person.

5.3.3 Complaints will be investigated and a response will be reported back to the complainant using the same method of communication that the complainant use, eg. email or phone call.

5.3.4 If multiple complaints are received and communication is required at a community level, a community liaison group will be established.

6. SUMMARY AND CONCLUSIONS

6.1 Waste operations at the site will consist of processing construction, demolition and excavation wastes to produce recycled aggregate products using a mobile crusher and screening plant.

6.2 The sensitivity of receptors to adverse impacts from dust has been assessed in accordance with IAQM guidance. All identified receptors in the surrounding area were assessed as having low sensitivity to both dust soiling and human health impacts due to their distance from dust/PM sources at the site.

6.3 The closest residences are Morleys Hall and Morleys Hall Farm located approximately 120 m to the northeast. There is a 4 m high vegetated bund along the eastern boundary of the site and a 2.5 m close boarded wooden fence along the northern boundary of the site which will aid in screening any dust emissions from prevailing winds from the south and west. Due to the distance from source (ie >100 m), containment provided by screening vegetation and the implementation of dust control measures, risks to these receptors are considered to be low.

6.4 Prevention of emissions will be through: use of a wheel wash, road sweeper, regular inspections of off-site roads, limiting vehicle speeds, and anti-idling policy. Suppression measures include the use of a mobile water bowser to dampen surfaces and stockpiles. The overall risk of emissions following mitigation measures has been determined as low.

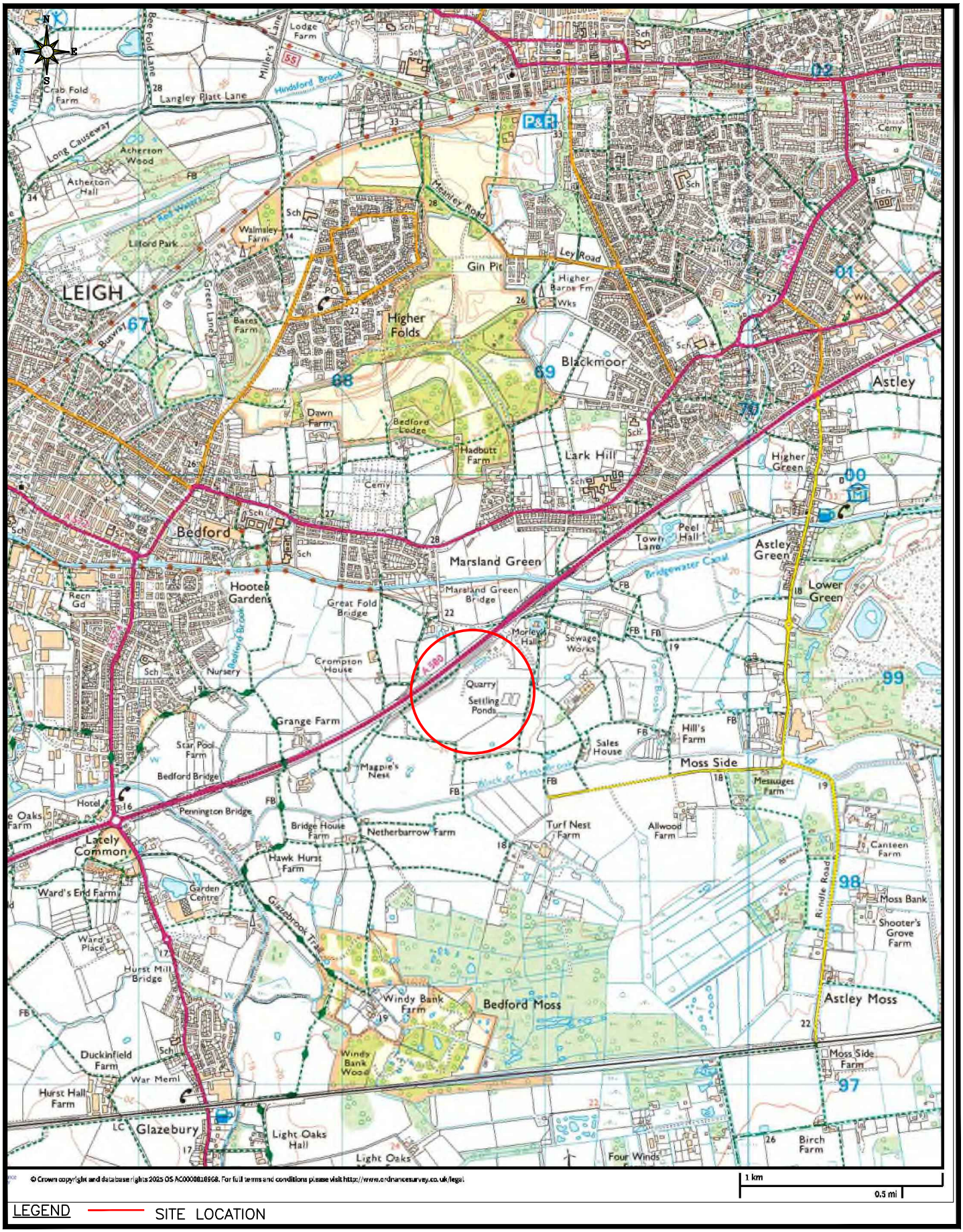
6.5 Stockpiles will be contained in bays and damped down in dry weather.

6.6 Daily dust monitoring will be carried out at locations around the site boundary and contingency actions will be implemented if dust is observed.

6.7 The Plan will be reviewed annually, or following any complaints received relating to emissions or any changes to site operations.

APPENDIX A

Drawings



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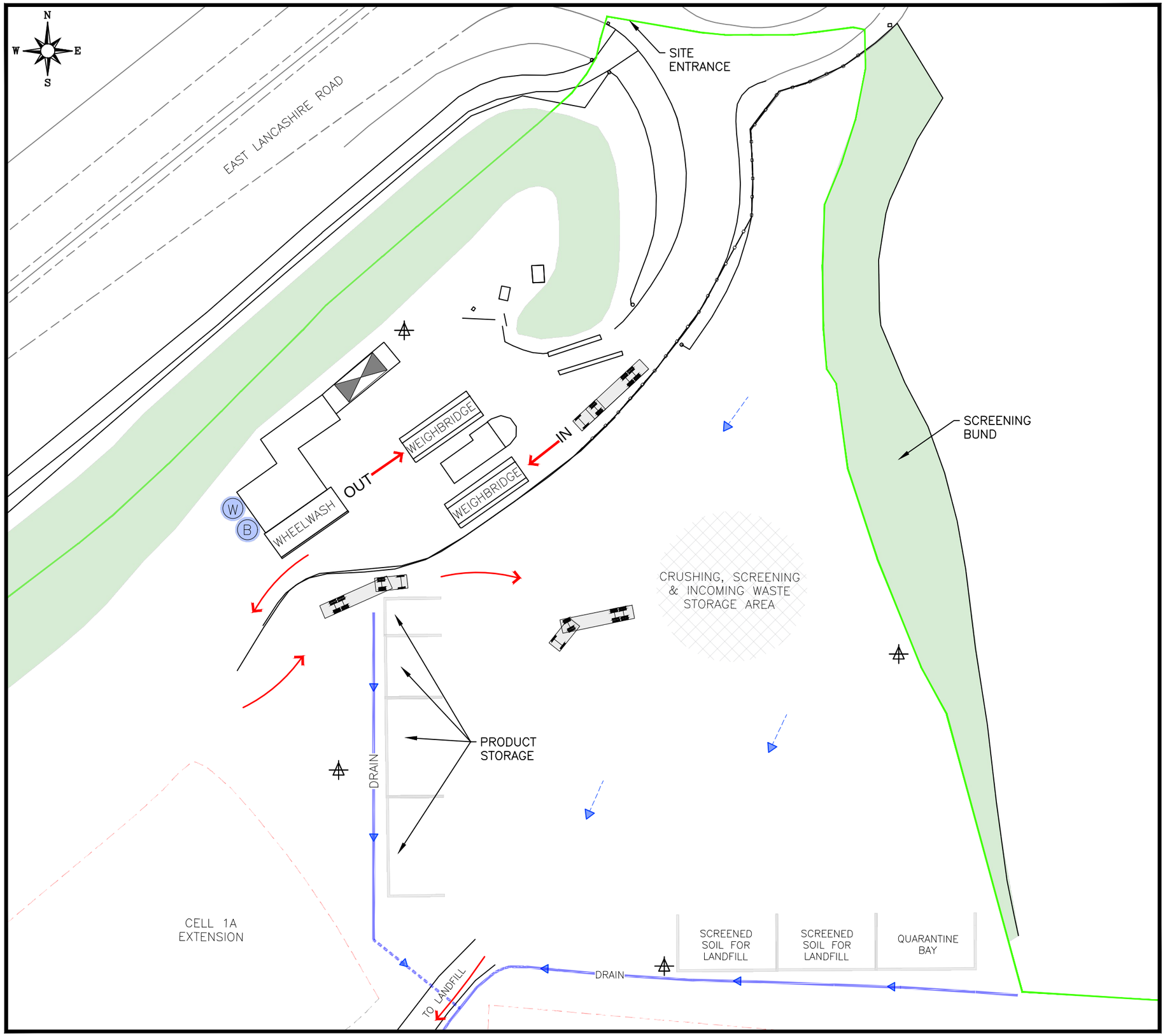
1 km
0.5 mi

LEGEND — SITE LOCATION

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

CLIENT: ASTLEY SAND & AGGREGATES LIMITED		DRAWN BY: M.Y.B	APPROVED BY: C.G
JOB TITLE: MORLEYS QUARRY, LANDFILL SITE, ASTLEY		DATE: 17/03/2025	DRAWING No.: 151/01
DRAWING TITLE: SITE LOCATION PLAN		SCALE @ A4.: 1:25,000	



KEY

- PERMIT BOUNDARY
- 2.5 m WOODEN FENCE
- LANDFILL CELL BOUNDARY
- DRAIN CULVERT UNDER ACCESS ROAD
- 4 m HIGH VEGETATED SCREENING BUND
- FUEL
- SURFACE WATER DRAINAGE DIRECTION (SURFACE)
- DUST MONITORING POINT
- (W) WATER MAINS
- (B) BOWSER

REV.	DESCRIPTION	DATE	BY

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

CLIENT.

ASTLEY SAND & AGGREGATES LIMITED

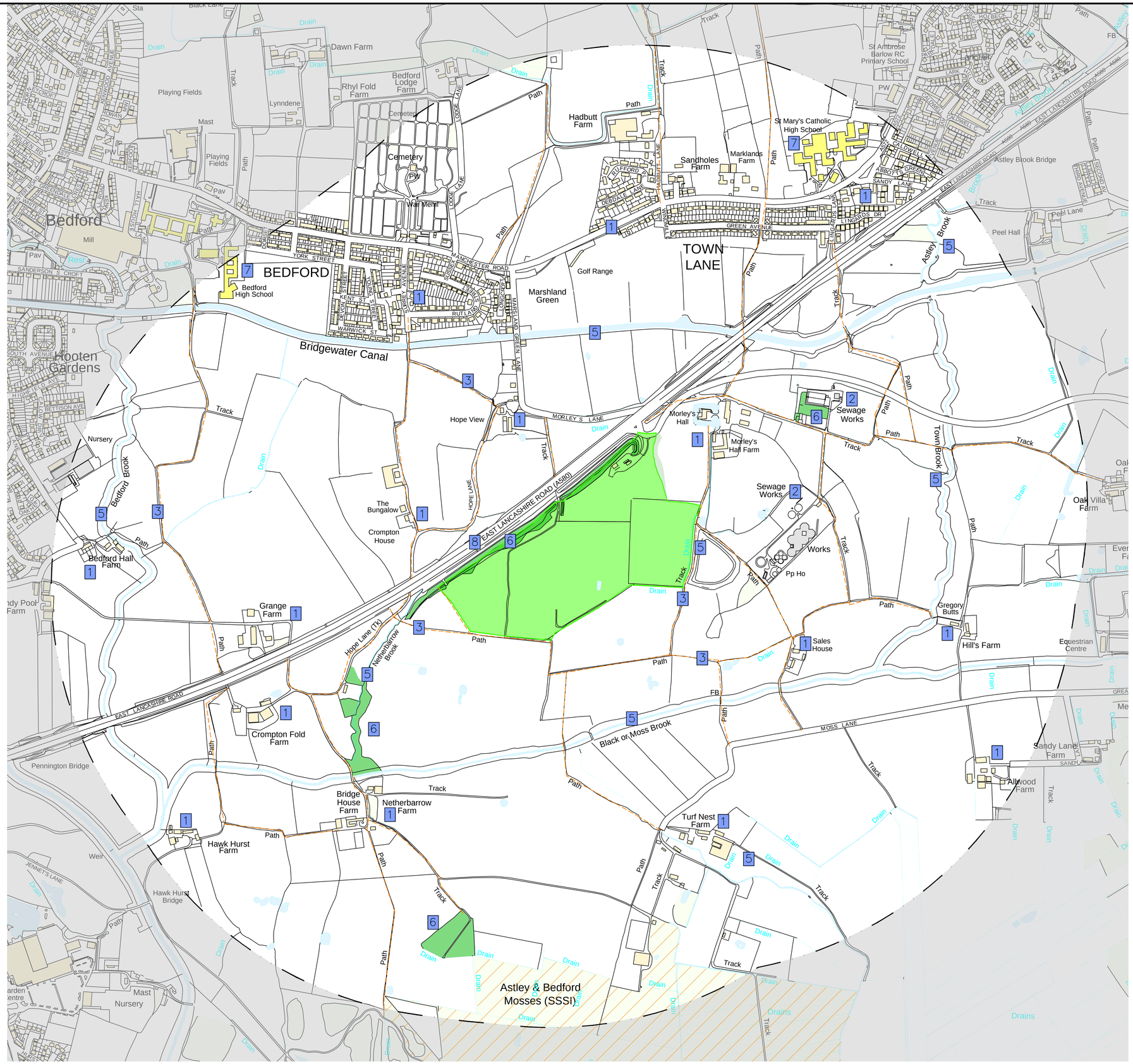
JOB TITLE.

MORLEYS QUARRY
LANDFILL SITE
ASTLEY

DRAWING TITLE.

RECYCLING AREA
LAYOUT

DRAWN BY.	APPROVED BY.	DRAWING No.
M.Y.B	C.G	151/02
DATE. 14/03/25	SCALE. 1:1000	



LEGEND

- PERMIT AREA
- 1 KM RECEPTOR BOUNDARY
- FOOTPATHS
- RESIDENTIAL PROPERTIES
- INDUSTRIAL/COMMERCIAL PROPERTIES
- ASTLEY & BEDFORD MOSSES SSSI & SITE OF BIOLOGICAL IMPORTANCE
- PRIORITY HABITAT WOODLAND
- WATERBODIES/WATERWAYS
- 1 RECEPTOR REFERENCE

PREDOMINANT WIND DIRECTION IS FROM THE SOUTH

REV.	DESCRIPTION	DATE	BY

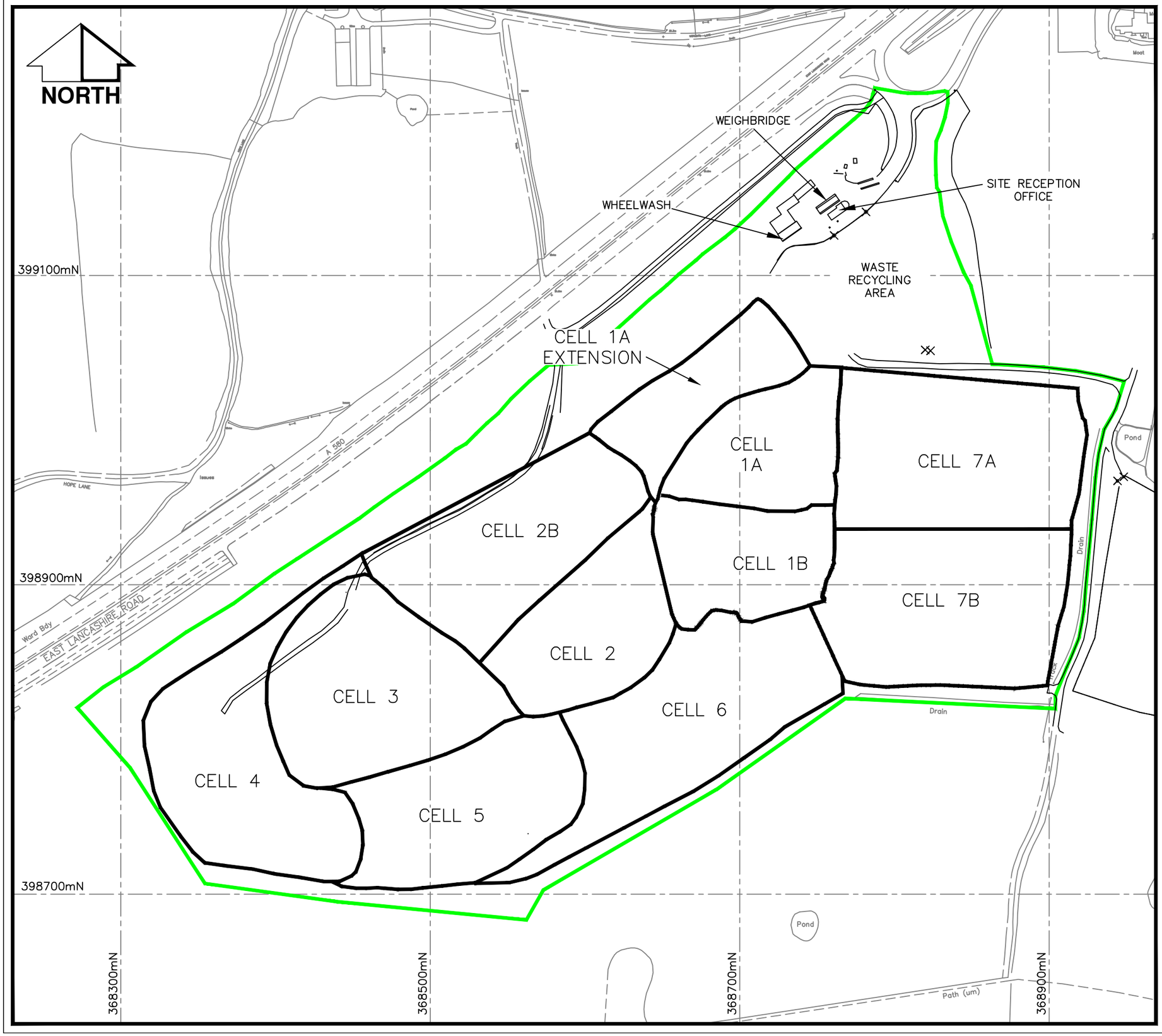
STARLING ENVIRONMENTAL LIMITED
67 Chorley Old Road, Bolton,
Greater Manchester, BL1 3AJ
www: starlingenvironmental.co.uk
email: claire@starlingenvironmental.co.uk
Tel: 07989 673122

CLIENT.
ASTLEY SAND & AGGREGATES LIMITED

JOB TITLE.
MORLEYS QUARRY
LANDFILL SITE
ASTLEY

DRAWING TITLE.
RECEPTORS WITHIN 1 KM

DRAWN BY.	APPROVED BY.	DRAWING No.
M.Y.B	C.G	151/03
DATE. 17/03/2025	SCALE @ A1. 1:5000	



KEY

REVISED PERMIT BOUNDARY

REV.	DESCRIPTION	DATE	BY
A	CELLS 7A & 7B ADDED	20.07.17	L.Mc.

THE ARLEY CONSULTING COMPANY LIMITED

Chorleian House
49-51 St Thomas's Road
Chorley, Lancashire PR7 1JE

Tel: 01257 278300
Fax: 01257 268063
E-mail: mailbox@taccl.co.uk

CLIENT.

ASTLEY SAND & AGGREGATES LTD

JOB TITLE.

MORLEYS QUARRY
LANDFILL SITE
ASTLEY

DRAWING TITLE.

CELL LAYOUT

DRAWN BY.	APPROVED BY.	DRAWING No.
M.Y.B.	M.L.	10543/41A
DATE. 07/06/2017	SCALE. 1:2500	

NORTH

399100mN

398900mN

398700mN

398500mN

368300mN

368500mN

368700mN

368900mN

369100mN

WEIGHBRIDGE

WHEELWASH

SITE RECEPTION OFFICE

WASTE RECYCLING AREA

BH1

BH2

BH3

BH4

BH4R

BH6

BH8

BH9

BH10

BH11

BH12

CELL 1A EXTENSION

CELL 1A

CELL 2B

CELL 1B

CELL 7A

CELL 2A

CELL 7B

CELL 3

CELL 6

CELL 4

CELL 5

LC1B

LC2A

LC2B

LC3

LC4

LC5

LC6

LC7A

LC7B

QUARRY SUMP

QUARRY SUMP DISCHARGE

SW-OUTFALL

SW1

SW2

The Bungalow

Crompton House

HOPE LANE

A580

EAST LANCASHIRE ROAD

Ward Bdy

Issues

Pond

Drain

Path (um)

Ponds

Tank

Path (um)

Black or Moss Brook

FB

KEY

- PERMIT BOUNDARY
- GAS MONITORING BOREHOLE
- DUAL/COMBINED GROUNDWATER & GAS
- GAS FLARE STACK EMISSION POINT
- GAS ENGINE EMISSION POINT
- SURFACE WATER SAMPLING POINT
- GROUNDWATER MONITORING BOREHOLE
- LEACHATE COLLECTION POINT
- LEACHATE MONITORING POINT
- LEACHATE DISCHARGE SAMPLING POINT

REV.	DESCRIPTION	DATE	BY
A	GROUNDWATER ABSTRACTION POINT ADDED	14.12.19	M.Y.B.

casey PRO-ENVIRONMENT

CLIENT.

ASTLEY SAND & AGGREGATES LTD

JOB TITLE.

MORLEYS QUARRY
ASTLEY

DRAWING TITLE.

MONITORING AND EXTRACTION POINT PLAN

DRAWN BY.	APPROVED BY.	DRAWING No.
M.Y.B.	M.L.	10543/62A

DATE.	SCALE.
29/03/2019	1:4000

APPENDIX B

Assessment Method

1 Assessment Method

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

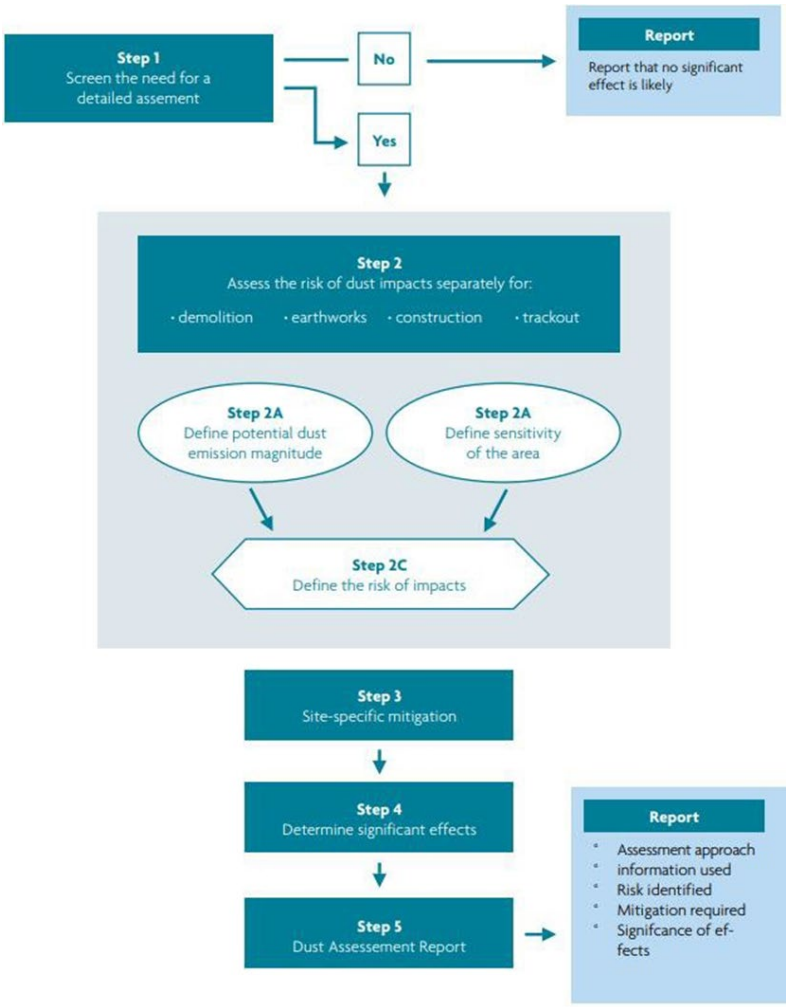


Figure A1: Assessment Procedure

2 Step 1: Screen the Need for a Detailed Assessment

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

3 Step 2: Assess the Risk of Dust Impacts

3.1 This step is split into three sections as follows:

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

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

Dust emission magnitude		
Small	**Medium**	**Large**
Demolition		
• total building volume <20,000m^3 • construction material with low potential for dust release (e.g. metal cladding or timber) • demolition activities <10m above ground • demolition during wetter months	• total building volume 20,000 - 50,000m^3 • potentially dusty construction material • demolition activities 10 - 20m above ground level	• total building volume >50,000m^3 • potentially dusty construction material (e.g. concrete) • on-site crushing and screening • demolition activities >20m above ground level
Earthworks		
• total site area <2,500m^2 • soil type with large grain size (e.g. sand) • <5 heavy earth moving vehicles active at any one time • formation of bunds <4m in height • total material moved <10,000 tonnes • earthworks during wetter months	• total site area 2,500m^2 - 10,000m^2 • moderately dusty soil type (e.g. silt) • 5 – 10 heavy earth moving vehicles active at any one time • formation of bunds 4 – 8m in height • total material moved 20,000 - 100,000 tonnes	• total site area >10,000m^2 • potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size) • >10 heavy earth moving vehicles active at any one time • formation of bunds >8m in height • total material moved >100,000 tonnes

Table A1: Dust Emission Magnitude (continued over)

Construction		
• total building volume <25,000m^3 • construction material with low potential for dust release (e.g. metal cladding or timber)	• total building volume 25,000 - 100,000m^3 • potentially dusty construction material (e.g. concrete) • on-site concrete batching	• total building volume >100,000m^3 • on-site concrete batching • sandblasting
Trackout		
• <10 HDV (>3.5t) outward movements in any one day • surface material with low potential for dust release • unpaved road length <50m	• 10 – 50 HDV (>3.5t) outward movements in any one day • moderately dusty surface material (e.g. high clay content) • unpaved road length 50 – 100m;	• >50 HDV (>3.5t) outward movements in any one day • potentially dusty surface material (e.g. high clay content) • unpaved road length >100m

Table A1 continued: Dust Emission Magnitude

3.7 Step 2B requires the sensitivity of the surrounding area to be determined for each activity, based on the proximity and number of receptors, their sensitivity to dust, the local PM_{10} background concentrations and any other site-specific factors. Tables A2 to A4 show the criteria for defining the sensitivity of the area to different dust effects.

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

Table A2: Sensitivity of the area to dust soiling effects

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

Table A3: Sensitivity of the area to human health impacts

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

Table A4: Sensitivity of the area for ecological impacts

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

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

Table A5: Risk of dust impacts

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

4 Step 3: Site Specific Mitigation

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

5 Step 4: Determine Any Significant Residual Effects

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

6 Step 5: Prepare a Dust Assessment Report

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

APPENDIX C

Monitoring Checklist

GREEN EARTH
DEVELOPMENTS GROUP

DAILY SITE LOG

KEEP IN SUPERVISOR'S OFFICE / VEHICLE

SITE :		**DATE:**	/ /	**Weather:**		

COTC Attendance:			**Staffing Levels:**
Name:	Time In:	Time Out:	

Plant Details:

360 Excavator ☐	Tractor ☐
Bulldozer D6R ☐	Pressure washer ☐
Bulldozer D6T ☐	Bowser ☐
Dump Truck ☐	Loading Shovel ☐
Finley Screener ☐	Extec Crusher ☐
Extec Robo Track ☐	

Operational Details :	***Daily Inspections***		**Comments**
Other details:	Public Rd clean		
	Cover		
	Road sweeping		
	Wheel Cleaning		
	Weighbridge		
	Odour		
	Dust		
	Noise		
	Surface water discharge		
	Litter		
	Fencing		
	Security		
	Lighting		
	Condition of haul Rd		
	Fuel tanks /Interceptors		
	Safety Instructions		

Agency Inspection	Action Taken

Non-compliance/Observation details	
Incident/Non-compliant Waste/Waste Rejection Reports:	**Action Taken**
Report No:	
Complaint Log:	

Inspections/Checks

Others Comment
Visitors / Contractors / Temp staff / Meetings:

Signed: **Print:** **Position:**	**Signed:** **Print:** **Position:**
Date / /	**Date: / /**

APPENDIX D

Complaints Form

GREEN EARTH
RESTORATIONS Ltd.

Environmental Complaint Form

Complainant Details

Name: _____

Contact Number: _____

Email Address: _____

Address: _____

Complaint Details

Date of Incident: _____

Location of Concern: _____

Description of Issue: _____

_____

_____

_____

Supporting Evidence (if applicable): _____

_____

For GED Office Use Only

Date Received: _____

Received By: _____

Investigation Details: _____

_____

_____

Action Taken: _____

_____

_____

Starling
Environmental
Limited