# Tetron Contracts Ltd

## Restoration of Middleton Quarry

## Dust Emission Management Plan (DEMP)

**Document Ref:** 163407/DEMP

December 2024

**AA Environmental Limited**
Units 4 to 8 Cholswell Court
Shippon
Abingdon
OX13 6HX
**T** 01235 536042
**F** 01235 532849
info@aae-ltd.co.uk
www.aae-ltd.co.uk

**REPORT FOR:**

Tetron Contracts Ltd
Hadzor Court
Hadzor
Droitwich
WR9 7DR

**Middleton Quarry**
**Heck & Pollington Lane**
**Pollington**
**East Riding**
**Yorkshire**

| Issue Date | **Document Reference** |
|---|---|
| December 2024 | 163407/DEMP |

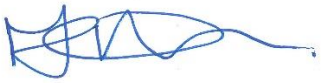
**Issued By**

……..
**Kristian Wood MSc BSc (Hons)**

**Reviewed By**

……..
**Ed Brown BSc (Hons)**

**Approved By**



……...
**Matthew Lawman MSc BSc (Hons)**

**AA Environmental Limited (Registered Office)**
Unit 4 to 8
Cholswell Court
Shippon
Abingdon
OX13 6HX

**T** 01235 536042
**F** 01235 532849
**E** info@aae-ltd.co.uk
**W** www.aae-ltd.co.uk

Company No. 8474322

**Table of Revisions**

| Issue | Date | Description of Changes |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
| | | |

# Contents



## DRAWINGS



## APPENDICES

# 1.0 INTRODUCTION & SCOPE

1.1 This dust emissions management plan (DEMP) accompanies the Landfill Permit application for the inert landfill at Middleton Quarry, Pollington, detailing the risk management of poor air quality emissions by Tetron Contracts Ltd (the Operator). The site is located circa 200 m north of the centre of Pollington village. The site is bounded by Heck & Pollington Lane to the north. Approximately 160 m northwest of the site and 190 m east are a number of commercial/industrial buildings. The nearest residential receptor is circa 20 m south of the site. The surrounding land lies between 9.0 to 15.0 m AOD. The quarry has been extracted to circa -0.5 m AOD at its deepest extent. The site is accessed off Heck & Pollington Lane.

1.2 As per the Operational Plan (163407/OP), the site will operate between the hours set out below:

- 07:00 to 18:00 – Monday to Friday (includes 1 hour allotted break period);
- 07:00 to 14:00 – Saturday (includes 1 hour allotted break period);
- Closed – Sundays and bank holidays.

1.3 The purpose of this plan is to:

- minimise the emissions of dust, particulates and $NO_2$ 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 $NO_2$ after all appropriate control measures have been applied with due regard to the sensitivity of the local surroundings.

1.4 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[1]. The relevant guidance in these plans relates primarily to construction processes which are consistent with those of an inert landfill and present good industry practice.

1.5 The movement, storage and placement of waste may generate particulates and litter. The sources of emissions and associated controls are described in Section 3 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.

1.6 In the event that the implementation of controls fails, corrective actions will be identified and implemented. The Site Manager will be responsible for implementation of the DEMP on site and site operatives will be provided with copies of this plan and trained on its implementation. Additional copies of the latest revision will be found in the site office and welfare area.

1.7 The waste tipping and placement activities can generate particulates. The 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.

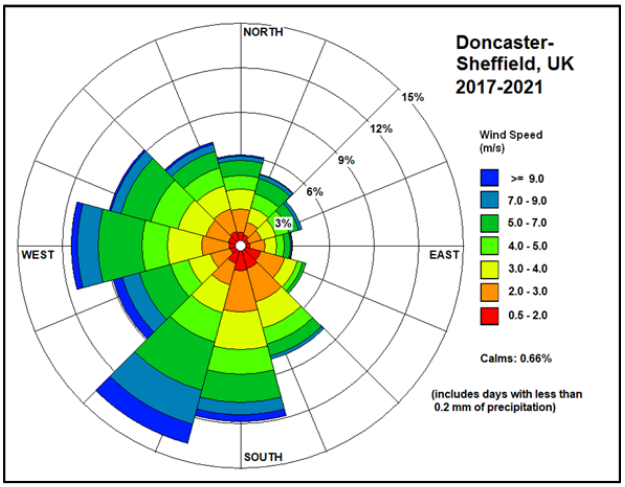
1.8 The scope of this management plan follows the Environment Agency's (EAs) requirements set out in the Dust and Emissions Management template. Monitoring is in line with EA Guidance M17.

[1] Guidance used as it is the most authoritative for the type of operations at the site.

# 2.0 SENSITIVE RECEPTORS & BASELINE CONDITIONS

**Baseline Conditions**

2.1 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 ADM Limited which has been collected from a location in Doncaster, circa 23 km south of the site. The data shows that the prevailing wind direction is from the south and southwest, as shown below. The residential properties to the south are located upwind of the prevailing winds. Accordingly, if fugitive dusts are emitted they are most likely to propagate north-north-east.




2.2 The land is at circa between 15 m AOD to the north and -5 m AOD to the south. The quarry is surrounded by agricultural fields to the south, by grassland to the west and woodland to the east. The north is bordered by Heck & Pollington Lane. To the southeast lies the village of Pollington. The sensitive receptors are shown in drawing 163407/D/002.

2.3 Considering that the prevailing wind direction is from the south southwest, the most sensitive receptor is the residential dwelling approximately 145 m north east of the site, as well as residential receptors in Highfield, circa 585 m to the north northeast of the site. Additionally, the village of Pollington is situated circa 20 – 30 m south east of the site, making the residents sensitive receptors due to their proximity.

2.4 DEFRA Air Quality Management Areas (AQMAs) data indicates the site is not within an AQMA. The nearest being the Knottingley AQMA for $NO_x$, circa 11.3 km east northeast of the site.

2.5 The site is located within the East Riding of Yorkshire area. No rural air monitoring locations exist for within 10 km of the site. The nearest automatic monitoring location is situated at 34 North Street, Goole, National Grid Reference (NGR) SE 74623 23576, circa 13.9 km east northeast of the site. The mean of the recorded values, determined from the available data (08-04-22 to 24-11-22) is 10.54 µg/m$^3$ for $NO_2$, 10.55 µg/m$^3$ for $PM_{2.5}$ and 11.60 µg/m$^3$ for $PM_{10}$. To note, this monitor is on the main roundabout within Goole, nearby to the docks; the measured air quality is therefore not particularly reflective of that at Middleton Quarry.

2.6 DEFRA estimate the background concentration for a number of pollutants over a number of years on a 1 km grid resolution for the whole of the UK[2].

2.7 Table 1 shows the Defra estimated background concentration of $PM_{10}$, $PM_{2.5}$ and $NO_2$ at the grid location closest to the site. Estimates are presented for 2021.

**Table 1. Estimated Annual Average Background Concentrations for 2021 (µg/m$^3$) [1]**

| Grid Receptor Location | $PM_{10}$ | $PM_{2.5}$ | $NO_2$ |
|---|---|---|---|
| 461500, 420500 (2018, last available record) | 14.79 | 8.49 | 9.69 |
| 461500, 420500 (2021, government projection) | 14.09 | 7.92 | 8.15 |

[2] https://uk-air.defra.gov.uk/data/laqm-background-home (accessed 29/11/22)

### Sensitive Receptors

2.8 Table 2 sets out the potential sensitive receptors to dusts, by either land use or proximity to the operation. This table supplements drawing 163407/D/002.

| Table 2. Sensitive Location Plan | | | |
|---|---|---|---|
| **Receptor ID** | **Description** | **Sensitivity** | **Distance from operational site** |
| Residential | | | |
| 1 | a) Dwelling off Heck and Pollington Lane | High | 145 m north east |
| | b) Pollington Residential Area (south) | | From 20 m south east |
| | c) Highfield Residential Area | Medium | From 585 m north north east |
| | d) Pollington Residential Area (east) | | From 850 m east |
| Commercial | | | |
| 2 | a) Gowdall Lane Business Park | Medium | From 735 m north north east |
| Industrial | | | |
| 3 | a) Unknown | Medium | From 15 m north |
| | b) Marshalls Civils & Drainage/ Marshalls CPM | | From 155 m east |
| | c) Heck and Pollington Lane Industrial Estate | Low | From 115 m west |
| | d) D M Cranes & Burgess Pet Care | | From 775 m north north east |
| Agricultural | | | |
| 4 | a) Agricultural Land | Low | From 5m (all directions) |
| Educational | | | |
| 5 | a) Pollington Balne C Of E Primary School | Medium | From 675 m south |
| | b) Pollington Preschool | | From 700 m south |
| Recreational | | | |
| 6 | a) Pollington Cricket Ground | Medium | From 195 m south east |
| | b) Pollington Playing Fields | | From 535 m south east |
| Solar Farm | | | |
| 7 | a) Solar Farm | Low | From 435 m north west |
| Watercourse | | | |
| 8 | a) New Fleet Drain | Low | From 450 m south |

### Local Dust Contributors

2.9 Table 3 sets out the potential dust emitters, by proximity to the operation.

**Table 3. Potential dust emitter locations**

| Land Use Type | Name | Approximate distance from site boundary to centre of emitter |
|---|---|---|
| Concrete contractor | Marshalls Civils & Drainage/ Marshalls CPM | From 155 m east |
| Scrap metal dealer | Gaskin Waste Recycling Ltd | 290 m north west |
| Scrap metal dealer | Scrap Local - Scrap Car Goole | 400 m north west |
| Concrete contractor | H+H Partners in Wall Building | 400 m west |

## 3.0 WASTE OPERATIONS

### Site Overview & Waste Operations

3.1 The operations on site involve transport, deposition and compaction of inert soils/aggregates. The site layout includes access / egress from the north via the site office. Lorries will drive directly to the area of placement (dependent on work programme). An excavator and/or bull dozer will spread the directly tipped material into the final landform area. Once the void has been filled, restoration soils will be placed in accordance with the Closure & Aftercare Management Plan. The site layout plan is presented in drawing 163407/D/003.

3.2 The site is accessed from the northern side from Heck and Pollington Lane. The landfilling will involve importation and placement of circa 426,900 $m^3$ of suitable inert wastes, expected to take approximately 3 years to complete. The wastes will consist of inert subsoils and mineral-based wastes within the Yorkshire area.

3.3 The overall dust risk that derives from the waste stream is considered potentially low to medium without mitigation; Table 4 highlights the potential dust risk without mitigation.

**Table 4. Waste processes, streams and description of process**

| Description | Processes (area) | Potential for fugitive particulate emissions without mitigation | Potential Risk (with no mitigation) |
|---|---|---|---|
| Haulage and site operation (site wide)<br><br>Landfill construction<br><br>Placement and compaction of Inert waste and material<br><br>Restoration phase | Import of inert waste/material to dedicated cell. | Possible exhaust emissions and fugitive dusts from loads from vehicles ($NO_x$, $PM_{10}$ (<10 µm), fibres and Total Suspended Particulates (TSP)). | Low/ medium |
| | | Possible: Wind entrainment of fines silts and soil on operating surface and haul route. | Low/ medium |
| | Tipping of waste/material in dedicated cell. | Possible exhaust emissions and fugitive dusts from loads from vehicles (NOx, PM10 (<10 µm), fibres and Total Suspended Particulates (TSP)). | Low/ medium |
| | | Possible wind entrainment of light fraction in the soils. | Low/ medium |
| | Placement and compaction of waste/material. | Exhaust emissions and fugitive dusts from the plant in operation ($NO_X$, $PM_{10}$ (<10 µm), fibres and Total Suspended Particulates (TSP)). | Low/ medium |
| | | Possible wind entrainment of light fraction in the soils. | Low/ medium |
| | Storage of waste in stockpiles | Possible wind entrainment of light fraction in the soils. | Low/ medium |

3.4 The dust risk derives from the finer fraction which can become airborne during dry conditions and without abatement controls. Appendix A has the source pathway receptors for all potential dust activities below. Dust and emission controls are outlined in Section 4.1.

### Plant and Equipment

3.5 The delivery plant involved are sheeted 8-wheel delivery lorries with an emission rating of Euro 5 and above. The deliveries are with standard, sheeted tipper lorries to be at a rate per day compliant with planning permission.

3.6 The plant is owned by the Operator and is maintained in line with manufacturer's specification. If plant must be replaced, the replacements will be a minimum of Tier 3B or Tier 4 emission standard. The combustion engine powered plant to be used is not yet known; As such their make, model and emission ratings cannot be imparted at this time. The likely plant to be used are excavator, bulldozer,

compactor, tipper truck, and tractor & bowser. A generator may also be used to power the welfare facilities.

## 4.0 DUST & PARTICULATE MANAGEMENT

**Sources of Fugitive Particulates and Control Processes**

4.1 The potential dusts include fine particulate matter which consist of inhalable fractions (total suspended particulates (<100 µm) and the more dangerous respirable fraction (less than $PM_{10}$). Such dust types are termed as friable. Friable dusts may occur in hardcore and aggregate waste, which will be largely incidental in the matrix of the imported waste material.

4.2 There will be no point source emissions of air pollutants. Any release will be fugitive. Any stockpiles present will be subject to periodic wetting by water bowser during dry conditions. There will be some trickle through within the waste depending on the particle size of the stockpile. Stockpiles will be compacted to minimise wind entrainment. When moved or disturbed by dozer or excavator, the inner part of the waste stockpile may be exposed. Manual dust suppression using a mobile bowser will suppress any exposures to ensure dust emissions remain low. Any tipping of HGVs will be under manual dust suppression control during dusty conditions.

4.3 Table 5 sets out the controls that will be implemented at all times the site is operational, unless specified otherwise.

## Table 5. Dust Emission Standard Operating Controls

| Ref | Abatement Measure | Description/Effect | Overall Consideration and Implementation | Trigger for Implementation |
|---|---|---|---|---|
| **Preventative Measures** | | | | |
| 1 | Site accessed directly from Heck & Pollington Lane to the north, the access is a bellmouth constructed of tarmac and leads directly into the site. | No mud generated.<br><br>Any mud/ dust brought to site on HGVs is easy to clean.<br><br>All waste is delivered by road.<br><br>The bellmouth entrance will be subject to a 'deep clean' by road sweeper on a weekly basis to prevent the build up of dirt and dust.<br><br>The bellmouth will be washed down and swept by hand and/or with a mechanical road sweeper at least daily. The frequency will be increased when significant accumulation is identified.<br><br>All lorries will be inspected for any mud/debris picked up by the wheels prior to leaving the site. If any mud/debris could be identified, the wheels will be cleaned using a hand held pressure washer manned by an operative.<br><br>See Appendix D for an example of pressure washer to be used. | A trained operative will inspect the access / egress of the site with the external road three times a day to determine whether there is beginning to be an accumulation of dust/mud. In the event there is, a road sweeper will be deployed.<br><br>The operative will also be manned with a strong brush for manual assistance. The operative will be aware of the DEFRA's CoP grading classifications and the corrective action response time will be immediate, provided it is safe to do so. As a minimum, the section of road external to the site access/egress will be swept within half a day of identification.<br><br>There will be a dedicated dust brush on site to deal with larger detritus and the road sweeper will remove the finer particles afterwards. | Excess mud/ dust will be identified in daily visual inspections. Grading classification and triggers will be in accordance with DEFRA's CoP. |
| 2 | Requirement for delivery lorries to implement dust controls. | All lorries will be 8-wheel enclosed, sheeted lorries or vehicle with equivalent dust controls.<br><br>Vehicles will be sheeted upon arrival. | Vehicles will temporarily uncover for visual inspection at the weighbridge or gate, then re-cover for the transit to the designated tipping location. | Operative responsible for ticket collection will enforce compliance with sheeting/ equivalent dust controls if dust control is inadequate.<br><br>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. |
| 3 | Tipping location situated in designated areas and under dust suppression in dry weather. | Vehicles will finally uncover at tipping location and under dust suppression spray (if required).<br><br>Where possible and as expected for the majority of the infilling operations, tipping will only occur within the void. | These designated areas are the only locations where unloading/ tipping will occur to ensure adequate suppression.<br><br>The high sides of the quarry and mature boundary vegetation provide considerable shelter from the wind. | Site operatives are briefed on the tipping location and will ensure that tipping occurs here. All vehicular unloading will be supervised by a banksman operative to ensure tipping is not uncontrolled. |
| 4 | Mobile dust suppression bowser operational during tipping of wastes in dry conditions. | The tipping waste will occur in the designated tipping areas with manual dust suppression misting during dry conditions.<br><br>There will be some trickle through within the waste depending on the particle size of the stockpile. Material within the stockpile is intrinsically sealed and therefore low risk of causing dust emissions. When moved or disturbed by dozer or excavator, the inner part of the waste stockpile may be exposed. Manual dust | Periodic wetting of stockpiles will occur by water bowser during dry conditions.<br><br>Another mobile water bowser can be sourced within 45 minutes from Finningley Quarry. | This abatement measure and suppression will be implemented whenever the conditions are dry enough to require it, or when the imported material is notably dry and giving rise to dust. |

| Ref | Abatement Measure | Description/Effect | Overall Consideration and Implementation | Trigger for Implementation |
|---|---|---|---|---|
| **Preventative Measures** | | | | |
| | | suppression will minimise any exposure and ensure that dust emissions remain low.<br><br>See Appendix E for example of dust suppression bowser to be used. | | |
| 5 | Drop heights and double handling minimised. | Drop heights will be minimised and double handling minimised at all times.<br><br>The operations will ensure that there is no need to drop from a height and the tipping area will be strategically situated, to avoid double handing. | Operatives who drive front loader and excavator will be briefed on the need to minimise drop heights. | Tipping area will always be near the area of placement for ease of work – modifications will be made to haul route and tipping area as progression of works require. |
| 6 | Sealing / tamping down stockpiled material | Stockpiles will be compacted to minimise wind entrainment and be stored at safe angles of repose (typically 1:3), to minimise the risk of instability that can lead to a greater risk of wind entrainment. | 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. 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.<br><br>Stockpiles will be avoided where possible, whereby tipped material will be bladed out immediately. | Site operatives are briefed on the stockpile management controls and these will be implemented at all times. |
| 7 | Temporary stockpiles to remain below 3 m and sheltered from the prevailing wind direction. | The height restriction will allow coverage under the mobile misting system.<br><br>Wind whipping of stockpiles will be kept to minimum. | Periodic wetting of stockpiles will occur by water bowser during dry conditions.<br><br>Stockpile locations to be where shelter is provided by quarry walls/ boundary vegetation. | Site operatives are briefed on the stockpile management controls and these will be implemented at all times. |
| 8 | Maintenance & cleaning of site haul route | Timely repairs to be made to site haul route, in order to maintain a functional running surface.<br><br>Use of road sweeper to remove fines and debris. | Haul route maintained to ensure a compact surface free from potholes, debris and fine material. A clean, level surface reduces fugitive emissions from disturbance caused by HGV wheels. | Repairs to be made to site haul route within 24 hours of deterioration being observed during visual inspections. |
| 9 | 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 will be subject to signage reminders of speed limit, dust controls and<br>by the operator at the ticket office. Driver's under the Operator's primary control will be subject to<br>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. |
| 10 | Clear signage and instruction for HGVs to keep to haul route | HGVs will avoid driving in muddy/ dusty areas, keeping the haul route and external roads clear of dust generating debris. | Signs will be visible at the access, as well as briefing given for new drivers at the weighbridge. | 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. |

| Ref | Abatement Measure | Description/Effect | Overall Consideration and Implementation | Trigger for Implementation |
|---|---|---|---|---|
| **Preventative Measures** | | | | |
| 11 | Haul route to include passing bays and reconstruction to accommodate new tipping areas | HGVs will avoid driving in muddy/ dusty areas, keeping the haul route and external roads clear of dust generating debris. | As the tipping area changes, depending on progression of works, the haul route will be modified to allow HGV tipping to occur from a hardcore surface with an adequate turning area. | As works progress and it is apparent that it is more efficient to move the tipping location. |
| 12 | Anti idling policy | Limit the fugitive emissions from vehicles by implementing a no idling policy. | All drivers delivering waste will be subject to reminders of no idling policy by the Operator at the ticket office.<br><br>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. |
| 13 | Visual monitoring inspection | The visual monitoring check will be completed daily by nominated site operative, where wind direction, airborne dust, dust soiling and weather conditions will be monitored. The check will be kept on site in the Site Office. These conditions will be monitored using the Met Office website and real-time observations on site. Notes of weather conditions off site may also be noted if different from on site notes.<br><br>The check will be formalized in the daily site diary book.<br><br>This will inform the need to use additional preventative measures. | The number of visual inspections will be increased in accordance with the weather conditions and following an emissions incident or complaint.<br><br>The inspections will be undertaken during normal operating hours, not during breaks. The inspection will include check of access/egress, haul route, acceptance of loads and tipping activities. | A minimum of 2 visual monitoring inspections will be undertaken per day. During dry / windy conditions, 3 inspections will be undertaken per day. A check note should be filled out for each inspection and kept in the Site Office.<br><br>In the event of dust identification, the procedure and actions set out in Section 5 of this DEMP will be implemented. |
| 14 | 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 |
| 15 | Routine servicing of plant and equipment. | All plant and equipment will be routinely serviced in line with manufacturers' guidance. | All plant and equipment will be routinely serviced in line with manufacturers' guidance. | Frequency of servicing will take be undertaken in line with manufacturer's guidance, or as faults or excessive emissions are identified. |
| 16 | Plant and equipment will be switched off when not in use | Plant and equipment will be switched off when not in use to reduce excessive emissions. | The importance of this measure will be reinforced during the daily briefing, site induction and during site walkovers (as part of the daily site inspection) by the Site Manager and the site operative nominated for visual dust monitoring. | During site walkovers (as part of the daily site inspection) by the Site Manager and the site operative nominated for visual dust monitoring, operatives will be reminded to switch off their engines if idling is identified. Incidences will be recorded in the site diary and appropriate action taken upon repeat offences. |
| 17 | Higher Tier generators used where possible | For permanent infrastructure requiring constant power, Tier 4 compliant generators will be used. For short term operations, as a minimum, Tier 2 or 3 will be used (where electricity cannot be provided). | Any procurement of generators will be aware of the classification and the need for the more suitable Tier 4 standard, where practically possible. | Any procurement of generators will be aware of the classification and the need for the more suitable Tier 4 standard, where practically possible. |

| Ref | Abatement Measure | Description/Effect | Overall Consideration and Implementation | Trigger for Implementation |
|---|---|---|---|---|
| **Preventative Measures** | | | | |
| 18 | Dusty load response procedure | Upon entering the site, loads are inspected on the weighbridge by staff member responsible for waste ticket collection/examination. A second inspection is undertaken during tipping. 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 suppression from mobile suppression bowser adsorbing any dust generated.<br><br>To note, it is the overall responsibility of the Site Manager to implement the dusty load response procedure. | The inspection at weighbridge should not overly disturb the dusty load. In the event dust is identified at the weighbridge stage, the mobile water bowser can be used to wet the surface of the load.<br><br>In the unlikely event that a dusty load is accepted, the load will be dealt with under dust controls within the void and/or away from receptors (dependent on wind direction).<br><br>The waste producer will be notified, and an investigation initiated to prevent recurrence. | Inspection and identification of dusty loads undertaken at ticket office and during tipping. |
| 19 | Daily litter pick | A daily litter pick will be undertaken by a nominated site operative who has been briefed internally on housekeeping requirements (shown in Appendix C). This will prevent build up of debris and airborne emissions of waste. | If litter has migrated offsite as identified, litter pick will also cover external road. This is unlikely given the site wide perimeter fencing and the very low risk of litter generation from the accepted waste types.<br><br>In the event that there is an escape of litter from the confines of the site and into the local environment, it will be the responsibility of the site staff to arrange for litter picking of the affected areas within the working day. The operation or delivery generating the escape of litter will be stopped and thereafter controlled to minimise further releases and any container releasing fugitive material will be covered or removed from site immediately.<br><br>An excessive spillage of materials anywhere within the site or on the adjacent road will be dealt with immediately by sweeping of the surface and litter picking if required. Such a spillage and the action taken will be recorded in the site diary. The EA can inspect the daily site diaries during inspections. | Visual Inspections will identify unacceptable conditions and trigger the litter pick in addition to the daily scheduled litter pick.<br><br>Records of inspections or remedial actions will be made in the site diary. |

4.4 Water for suppression will be sourced off site third party (circa 10,000L tanker 4 times a day giving 40 $m^3$). Excess water that cannot be accommodated by the tanks of the sweeper and bowser will be stored in IBCs onsite.

4.5 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 5 hours = 9.5 $m^3$ |
| Pressure washer | 1,125L tank emptied x 3 = 3,375 L = 3.4 $m^3$ |
| Mobile tractor and bowser suppression | 11,000 L tank emptied x 2 trips = 35.4 $m^3$ |
| Maintenance (cleaning, washing down) | Estimated at 0.5 $m^3$ |
| **Total** | **35.4 $m^3$** |

1. Water consumptions taken from WRAP 'Case Study: Water Efficiency on construction site'.
2. Calculations based on a 10-hour day.

4.6 Based on the worst-case scenario in Table 6, the water capacity at the site can accommodate site operations. It is reasoned that in most cases, surplus water would remain in the IBCs after each day and will be sufficient to meet the water consumption needs in addition to the two tankers. A third tanker would be organised if the conditions are particularly adverse.

4.7 In the event water supply fails, the Operator will cease importation activities. If land formation activities are situated adequately within the void, the dozer and excavator would continue works, where the activities are sheltered from wind transport.

4.8 During drought / dry conditions, in the event water use is rationed, keeping the access/ egress free of dust will be prioritised. Importation activities would be reduced to a level manageable for the bowser to provide suppression.

## 5.0 PARTICULATE MATTER MONITORING

5.1 A daily site inspection will be undertaken by a nominated, trained operative, including potential sources that day, the control of dusts and the provision of controls. This information will be recorded in the Site Diary. 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 who has been given appropriate internal training by Site Manager and/or Technically Competent Person (TCP), and/or environmental consultant. In the event the Site Manager is not at the site, the On-Duty Manager 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 visual inspection will be performed on foot, allowing adequate opportunity to identify emission sources at the 4 locations across the site and the external location (locations seen in drawing 163407/D/006), where the operative will stop to observe from each monitoring point for a minimum of 2 minutes. The visual monitoring will be undertaken prior to ceasing operations each day. Inspection of static objects (cars, street furniture, storage containers) will be used to gauge the extent of dust soiling and will be wiped clean so an accurate judgement can be performed on the subsequent inspection. To note, no out of hour visual monitoring provision is deemed necessary given control measures applied.

5.3 Weather conditions (temperature, precipitation and wind speed/direction) will be recorded in the daily site diary using a value obtained from the Met Office online resource. After completion of the inspection, the inspected wind directions will be compared against the desktop inspection. The comparison will be for information only. If the local weather conditions do not match the Met office conditions, the local conditions will take precedence.

5.4 A minimum of 2 visual inspections will be undertaken per day. During dry / windy conditions, 3 inspections will be undertaken per day. One of the checks will be before cessation of works each day. The inspections will be undertaken during normal operating hours, not during breaks. The inspections

will include check of access/ egress surface, external road, haul route, acceptance of loads and tipping/loading activities. To ensure this system is operating effectively, it will be reviewed monthly by the Site Manager. If found to be ineffective (e.g. recurring identification of dust sources on site, poorly filled out forms), the methodology and frequency of the monitoring will be reviewed, revised and briefings will be implemented. This is the responsibility of the Site Manager.

5.5 The daily inspections will have a trigger threshold of visual dust in the form of a visible dust (this may be in plume form or separated, this may also just be felt on your skin rather than visible) within the site, as a result of vehicle movements, wind whipping or material handling. 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, the response procedure (set out in section 5.6 to 5.9 below) must be implemented.

5.6 In the unlikely 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 Site Manager is responsible for the implementation of the incident response procedure. The response procedure actions are set out below. When triggered, 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 internal trigger level is identified again within 30 minutes of the first identification raised; and the wind direction indicates it could be from the site; the source activity will be temporarily suspended. The activity will not resume until sufficient controls have been achieved (i.e. no visible identification). 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, further targeted quantitative dust monitoring will be undertaken to establish source and effective control measures. Details of the quantitative monitoring is set out in section 5.7.

5.7 Quantitative monitoring will be undertaken within 10 working days (this covers consultant lead in times and procurement) of when the final of three incidents is identified. The quantitative monitoring will be one of the following and will be in accordance with the standard set out in M8 EA guidance:

- Pumped (active) sampling of PM10 onto filter paper; Gravimetric analysis; or
- Light-scattering optical particle counter

5.8 The monitor will be set up in accordance with supplier recommendations and environmental consultant's procedures. The focus of the monitoring will be on determining the source activities and measurements will be collated within 10 m, within 30 m and at boundary in upwind and downwind locations. This will only be undertaken in dry conditions (to recreate similar conditions to the breaches and to preserve integrity of the equipment). Monitoring will also be undertaken at specific receptors to account for any complaints/concerns.

5.9 The monitoring equipment and consultant will be carried out under MCERTS accreditation. The quantitative dust monitoring PM10 threshold will be 75 $\mu g/m^3$ over a 5-minute period average. If the quantitative action threshold is exceeded; and the wind direction indicates it could be from the site; the site will identify and cease the likely source operation until measured PM10 concentrations drop below the action threshold for a 30-minute period.

5.10 The internal 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 within 1 week. To note,

these are internal identifications of dust on site. Any exceedance which is not from the site but from an adjacent third-party activity, will be noted in the Site Diary.

5.11 All complaints will be logged and dealt with appropriately in accordance with the Operator's complaint procedure (shown in Appendix B). Operations and additional controls are in accordance with Appendix B.

5.12 All monitoring data will be made available to the Local Authority and Environment Agency, upon request or as specified within the Environmental Permit. This will include any reporting or notification response or contextual information regarding the monitoring data. This will be undertaken within 10 working days of when the monitoring data is issued.

**Controls in the Event of Abnormal Fugitive Emissions**

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

- take immediate action to cease operations;
- investigate the incident;
- record the incident and the remedial site action in the Site Diary; and
- the DEMP will be updated accordingly and issued to the EA for review.

5.14 Remedial actions are dependent on the source but may include, but not limited to:

- Increase the frequency of road sweeping along the haul route, access/ egress and external road;
- Deploy more mobile misting systems, including manual hosing down, specifically targeting certain locations;
- Limit activities to fewer hours each day (in addition to the standard controls being implemented);
- Stop accepting certain sources of waste which are exhibiting a greater friable dust potential; and
- Remove the dusty waste from site under dampened conditions immediately (under suppression systems).

5.15 In periods of drought (defined as > 35 °C over 3 days consecutively or no rainfall in 14 days) and high winds (defined as > 25mph on any day), operations will be limited in the following ways:

- Limit activities to fewer hours each day;
- Limit the number of loads accepted proportional to the reduction in activities, focusing on operating within the void on land formation works;
- Wet down loads during tipping;
- If limited or no water is available, the Operator will operate in accordance with section 4.9 and 4.10 of this DEMP.

5.16 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 or alternative measures, as agreed. In the event that the implemented systems change, the DEMP will be reviewed and amended accordingly.

## 6.0 DEMP MANAGEMENT, TRAINING & RESPONSIBILITIES

**Management Responsibilities**

6.1 The staff member responsible for implementation, updating and review of this document is the site manager. The site manager is given appropriate training regarding this document upon induction. Upon each document revision and review by site manager, a final review of the document and evaluation of training will be undertaken by senior management.

6.2 All site operatives will receive internal dust and emissions training. Training is included within the site induction (upon the start of employment), during daily site briefings, and through tool box talks.

6.3 As a minimum, this plan will be reviewed by the site manager 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, or change to the processing plant. 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.

6.4 The main site telephone number, including site emergency number is displayed on the exterior of the site boundary on signage and the site telephone number and email are found on the website. Complainants are readily able to contact site management through different avenues, allowing their concerns to be addressed in a timely manner.

6.5 In the event there is a change in the process or dust profile on site, the Operator will notify residents within 100 m of the site of any changes. This will be undertaken on an individual basis either by email, letter or door to door meeting.

# DRAWINGS

# Appendix A
# Source, Pathway Receptor Table

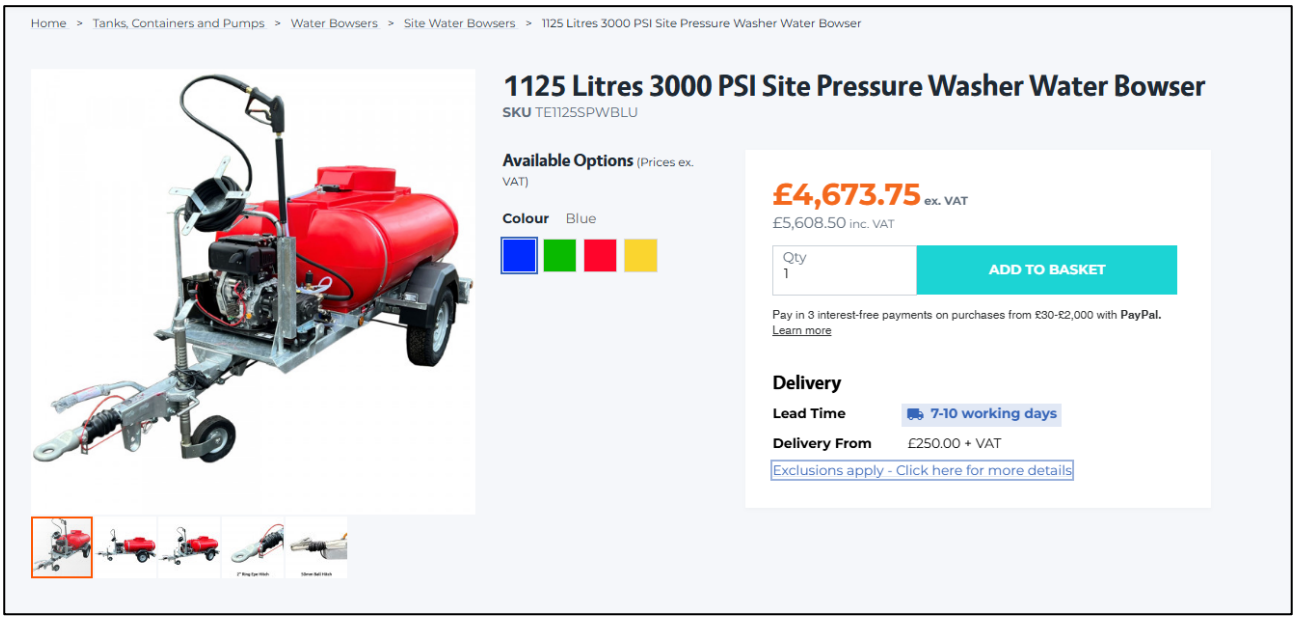
| Source | Pathway | Receptor | Type of impact | Where relationship can be interrupted |
|---|---|---|---|---|
| Dust, mud and debris from vehicle operations through haul route and external road. | Tracking dust on wheels and vehicles, then mud dropping off wheels/vehicles when dry<br><br>Debris falling off lorries | Surrounding receptors listed in Table 2 | Visual soiling, also consequent resuspension as airborne particulates | Site wide speed limit set at 10 mph for all HGVs.<br><br>Hand sweeping and road sweeping implemented, with access point swept and maintained daily.<br><br>Weather will be monitored and site operations limited accordingly./ higher frequency of water suppression.<br><br>Haul route to be compacted and maintained, with repairs made within 24 hours.<br><br>Wash down implemented if problems identified.<br><br>Clearing of debris at the start and end of each shift and as identified during visual inspection. |
| Dust from importation, tipping and handling of wastes. | Escape from buildings and subsequent atmospheric dispersion | Surrounding receptors listed in Table 2 | Airborne particulates | Haul route to be compacted and maintained, with repairs made within 24 hours.<br><br>Dust suppression over tipping area and high dust risk stockpiles during adverse weather conditions.<br><br>Lorries covered prior to tipping and leaving site.<br><br>Design of site so tipping area is located within void, away from receptors. Shelter is provided by quarry side walls and boundary vegetation.<br><br>Minimising drop heights and tipping area close to area of placement to minimise double handling. Tipping area to be modified as work progresses. |
| Dust from landfilling activities | Atmospheric dispersion | Surrounding receptors listed in Table 2 | Airborne particulates | As any dust migration is identified as a problem/ receptors are at risk, portions of boundary fencing to be fitted with dust netting accordingly.<br><br>Activities to be limited to fewer hours each day. |
| Vehicle and NRMM exhaust emissions | Atmospheric dispersion | Surrounding receptors listed in Table 2 | Airborne particulates | Regulatory controls and best-practice measures to minimise source strength.<br><br>Regular maintenance in line with manufacturer guidance. |

# Appendix B
# Complaints Procedure & Form

# Appendix C
# Weekly Housekeeping Schedule

| Housekeeping activity | Area of the site | Frequency | Personnel | Record |
|---|---|---|---|---|
| Litter inspection and pick | Whole site | Daily – typically beginning of each working day | Nominated operative | Daily Site Diary |
| Manual brush | Access / egress to the site | Daily - if mud on road is identified | Nominated operative | Daily Site Diary |
| Road sweeper brush | Access / egress to the site | Daily - if mud on road is identified | Nominated operative / third party contractor | Daily Site Diary |
| Stockpile height and surfacing – tidy up | Feedstock and material | Daily – end of each day | Plant operator | Daily Site Diary |
| HGV route inspection – cleared of debris | Route to and from the different yard areas. | Daily – beginning and end of each day | Plant operator | Daily Site Diary |
| Welfare unit clean | Welfare unit | Weekly | Third party contractor | Daily Site Diary |

# Appendix D
# Example of manual hand held wheel wash



# Appendix E
# Example of Mobile water bowser