GRS Stone Supplies Limited

Inert Landfill and Restoration at Lower Hare Farm

Dust Emissions Management Plan

Document Ref: 213189/DEMP

May 2021

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1.0 SCOPE OF PLAN

1.1 This dust emissions management plan (DEMP) sets out how the risk of poor air quality emissions are managed at Lower Hare Farm site in Whitestone, Devon. The Operator is GRS Stone Supplies Limited, hereafter referred to as the Operator. This document has been produced in support of the environmental management systems for the bespoke permit facilitating inert landfilling and restoration of Lower Hare Farm. The development was granted planning permission (Application Reference: 19/00207/DCC) by Teignbridge District Council/ Devon County Council on the 30th June 2021.

1.2 The purpose of this plan is to:

- minimise the emissions of fibres, 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.

1.3 There is no quantitative assessment/modelling of the dust/air emissions as there are no point source emissions. This management plan incorporates industry good practice including to ensure the air quality emissions risk remains low during the site's operation. The plan has been developed following the principals set out in:

- EA dust control guidance including the Dust Emissions Management Plan template;
- Teignbridge Air Quality Action Plan; and
- SPG Mayor of London Guidance and City of London Code of Practice for Deconstruction and Construction Sites[1].

1.4 The relevant guidance in these plans relates primarily to construction processes which are consistent with those operated at the restoration site and present good industry practice.

1.5 The whole site comprises of approximately 11.5 hectares of land that is predominantly in use for agriculture and is bound by agricultural land on all sides, including agricultural land that is under the Landowner's ownership. There is priority deciduous woodland and a small, unnamed tributary stream of the Alphin brook situated along the western boundary of the site. The stream meets another tributary stream to the south west, which ultimately drains to the Alphin Brook.

1.6 The site waste operations consists of deposit of inert waste only and use of engineering fill and restoration soils. Suitable engineering material arrives on site, unloaded at the point of placement and placed by mobile plant.

1.7 The restoration operations can generate particulates. 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.

1.8 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 can be found in the site office and welfare area.

1.9 This document will form part of the Operator's Environmental Management Systems (EMS). The EMS will be kept in the site office, and all operation staff will be briefed on the contents of this document. The Site Manager is responsible for the implementation of this Plan.

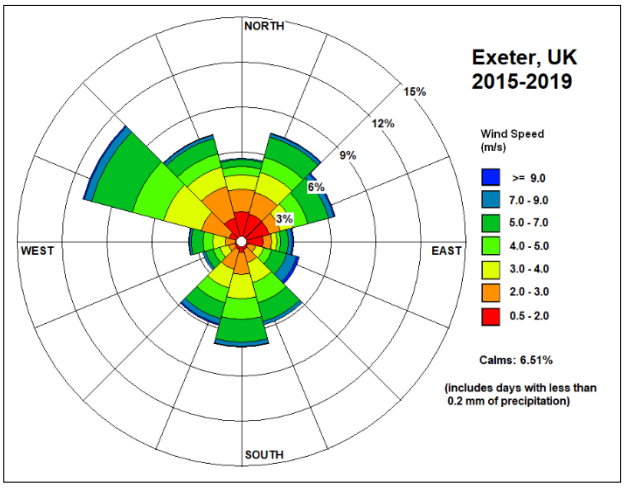
1.10 The scope of this management plan follows the Environment Agency's (EAs) requirements set out in the Dust and Emissions Management template. Monitoring is in line with EA Guidance M17.

[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 for a five year period from the Met Office for the Exeter Airport weather station, which is approximately 14.6 km to the east of the site. The data shows that the prevailing wind direction in the area is from the north west quadrant. Accordingly, if fugitive dusts are emitted they are most likely to propagate towards the east-south-east.



2.2 The site is in Devon, circa 5 km west of the outskirts of Exeter. The site is accessed via a private road off of Five Mile Hill to the west of the site. The site is bounded on all sides by agricultural fields, with scattered residential dwellings throughout the wider area. The A30 main road runs east to west, circa 525 m south of the site. The sensitive receptors are shown in drawing 213189/D/002. The site layout and access are shown by drawing 213189/D/004.

2.3 Considering that the prevailing wind direction is from the north west, the most sensitive receptors will be the residential receptors on Ford Lane, circa 500 m to the south east of the site.

2.4 DEFRA Air Quality Management Areas (AQMAs) data indicates the site is not within an AQMA. The nearest AQMA is the Crediton AQMA for NO_2 and PM_{10}, circa 6.54 km north-north-east of the site.

2.5 The site is located within the Teignbridge District Council (TDC) area. The nearest representative TDC automatic monitoring location is situated at Exeter Road, National Grid Reference (NGR) SX 91481 86657, circa 8.85 km south east of the site. This recorded a 2019 annual mean of 12.8 µg/m^3 for NO_2. There was no $PM_{2.5}$ or PM_{10} monitoring undertaken. This diffusion tube monitor is considered relatively representative of the site given its proximity to the A30 of circa 100 m, with the site being a greater distance of 525 m from the A30.

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 34	**PM_{10}**	**$PM_{2.5}$**	**NO_2**
285500, 93500 (2018, last available record)	9.0	5.5	5.1
285500, 93500 (2021, government projection)	8.7	5.3	4.5

2.8 These DEFRA estimates for NO_2 are less than half the magnitude of the diffusion tube monitor at Exeter Road, likely due to difference in proximity to the A30 between the monitor and the site.

[2] https://uk-air.defra.gov.uk/data/laqm-background-home (accessed 03/12/21)

2.9 Table 2 sets out the potential sensitive receptors to dusts, by either land use or proximity to the operation. This table supplements drawing 213189/D/002. With the dominant wind direction from the south, the receptors at higher risk from fugitive emissions are likely to be users of the PRoW along the A57, the residential receptors on the A57 and the users of the flying schools and associated airport infrastructure north across the A57. Table 3 sets out other potential dust emitters.

Table 2. Sensitive Receptors	
Receptor Type	**Approximate distance from site**
Residential – houses within 500 m included on table	
1a – Gratton House/ Ramslade Farm	80 m north
1b – Lower Hare Farm	170 m west
1c – Oak Ridge, West Town Farm, Wheal House	205 m south
1d, 1f – Residents north of Merrymeat road, Higher Hare	420 m north west
1e – Higher Hare Bungalow	420 m west
Industrial/Commercial	
2a – Solar Farm	400 m south west
2b – Husseys Auction Centre	550 m south west
Transport	
Five Mile Hill	320 m south
A30	450 m south
Agricultural	
Various	< 50 m in all directions
Priority Habitat	
Dinney Copse / Raddy Cleave Copse	< 50 m west and south west
Gratton Copse	150 m north west
Bottom Land Copse	70 m south west
Lendon Down Copse	240 m north east
Protected Species Site	
N/A	
Statutory Designated habitat/site (SSSIs, SACs, SPAs, Ramsar, NNRs, LNRs)*	
N/A	
Recreation	
N/A	
Statutory Historic Buildings	
Listed Buildings – Lower Hare Farm	170 m west
Listed Buildings – Whitestone House	620 m north east
Listed Buildings – West Town Farm	270 m south
*SSSI = Sites of Special Scientific Interest; SAC = Special Area of Conservation; SPA = Special Protection Areas; NNR = National Nature Reserve; LNR = Local Nature Reserve	

Table 3. Other potential dust emitters		
Name	**Comments**	**Approximate distance to receptor**
Surrounding agricultural land	Activities include the farming activities and plant movement. Potential for increase in NO_X, PM_{10} Total Suspended Particulates (TSP).	< 50 m
Public Highway: Five Mile Hill and A30.	Activities include the vehicle movement. Potential for increase in NO_X, PM_{10} Total Suspended Particulates (TSP).	>300 m south

3.0 WASTE OPERATIONS

3.1 The operations on-site involve transport, deposition and compaction of inert soils / aggregates, to construct the restoration landform. The site layout includes access / egress to the west of the site via weighbridge/wheelwash and site office. Lorries drive directly to the placement area.

3.2 The site infrastructure is shown on drawing 213189/D/004. Further detail on the site operations are detailed in the Operational Working Plan (Ref: 213189/OP). The typical waste types are set out in Table 4 below.

Table 4. Typical waste types brought to site				
EWC	**Description**	**Tonnes per week (indicative)**	**On site Process**	**Potential Risk (with no mitigation)**
17 05 04 20 02 02	Soil and stones	< 4,000 tonnes	Transferred directly to placement. No process as material is suitable for placement.	Medium / High
17 01 01 17 01 02 17 01 03 17 01 07	Concrete, brick, tiles and ceramics	0 – 750 tonnes	Larger fraction with little friable small particle size. No additional processing required.	Low
Notes: 1. EWC codes are the most likely to be imported to site. The tonnes per week and processes are considered worst case and are subject to varying factors.				

3.3 Table 5 overleaf sets out the waste management activities and the potential risk for fugitive particulate emissions without mitigation.

Table 5. Waste processes, streams and description of process

Description	Processes (areas)	Potential for fugitive particulate emissions without mitigation
Haulage and site operation Placement and compaction of inert material Restoration phase	Import of inert waste / material	Possible exhaust emissions and fugitive dusts from loads from vehicles (NO_x, PM_{10} (<10 µm) and Total Suspended Particulates (TSP)).
		Possible wind entrainment of fines silts and soil on operating surface and haul route.
	Tipping of waste / material	Possible exhaust emissions and fugitive dusts from loads from vehicles (NOx, PM10 (<10 µm), fibres and Total Suspended Particulates (TSP)).
		Possible wind entrainment of light fraction in the soils.
	Placement and compaction of waste/material.	Exhaust emissions and fugitive dusts from the plants in operation (NO_X, PM_{10} (<10 µm) and Total Suspended Particulates (TSP)).
		Possible wind entrainment of light fraction in the soils.

3.4 The particulate emission risk assessment is shown in Appendix A.

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 either standard, sheeted tipper lorries, at a rate per day compliant with planning permission.

3.6 The onsite plant involved in daily operations are likely to be one bulldozer with a compaction attachment. These plant are owned by the Operator and are maintained in line with manufacturer's specification. If plant must be replaced, the replacements will be of the lowest emission standard possible at the time of purchase. There are no generators on site.

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.

4.2 There will be no point source emissions of air pollutants. Any release will be fugitive. There is no processing on site. All waste types will be suitable for permanent placement when transferred to the site. Given the waste operation is over a large area, a building enclosure is not considered appropriate for this activity.

4.3 Table 6 sets out the controls that will be implemented at all time the site is operational, unless specified otherwise:

Table 6. Site Dust Control Measures				
Ref	**Abatement Measure**	**Description/Effect**	**Overall Consideration and Implementation**	**Trigger for Implementation**
Preventative Measures				
1	Concrete or tarmac surfacing internal haul route from public highway to site.	The internal route from Five Mile Hill to the ticket office is circa 620 m long. No mud generated along the internal route. Any mud/ dust brought to site on HGVs is easy to clean over surfaced sections. All vehicle running surfaces at the site are hard surfaced and all waste is delivered by road.	The access / egress dedicated manned wash down area can be used in the event there is significant tyre mud / dust on HGVs, and will be supplemented by a road sweeper and wheel wash to limit risk of dust from residual waste and dust picked up on the tyres. A trained operative will inspect the access / egress with the external road three times a day to determine whether there is beginning to be an accumulation of dust/mud on the internal impermeable concrete or on the junction with the external road. In the event there is, a road sweeper will be deployed. 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 (shown in Appendix F) and the corrective action response time will be immediate if Grade C or D is identified, provided it is safe to do so. As a minimum, the junction will be swept within half a day of identification.	Excess mud/ dust will be identified in daily visual inspections. Grading classification and triggers (Grade C or D) 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. 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. 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	Wheel wash during dry / muddy conditions	The wheel wash is a drive through type system. There is no water re-circulation and is topped up. The system is 7 m^3 and (worst case) requires up to 2 m^3 top up per day. All HGVs will go through the wheel wash when leaving the site.	Operatives who drive will be briefed on the need to use the system.	Operative responsible for ticket collection will enforce compliance with wheel wash dust controls if dust control is inadequate. 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.
4	Tipping location at final placement of material.	Vehicles will finally uncover and tip at final placement location. This ensures no temporary storage. Upon compaction, the risk of wind-blown dust is considered very low.	The place of tipping will change over time however risk is significantly reduced if permanently compacted within that working day.	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.

Table 6. Site Dust Control Measures				
Ref	**Abatement Measure**	**Description/Effect**	**Overall Consideration and Implementation**	**Trigger for Implementation**
Preventative Measures				
5	External: dust suppression systems – mobile water bowser with spray attachment.	As necessary, mobile manual water bowser with spray attachment to dampen down haul routes and surfaces to prevent further mobilisation. This will occur when dry conditions are encountered at the beg inning of each working day. An example of the bowser is shown in Appendix B.	There is no exception to this abatement measure and in the event that the dust suppression system fails, all operations will cease until the control can recommence. Critical spares for the dust suppression system (sprays) will be maintained on site. There will be one replacement handheld high pressure misting system kept on site.	There is no exception to this abatement measure and suppression will be implemented whenever these activities are taking place.
6	Drop heights and double handling minimised.	Drop heights will be minimised and double handling minimised at all times.	Operatives who drive will be briefed on the need to minimize drop heights.	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.
7	Site wide speed limit set at 5 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 by the operator at the ticket office. 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.
8	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. 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.
9	Visual monitoring inspection	The visual inspection will be completed daily by nominated site operative, where wind direction, airborne dust, dust soiling and weather conditions will be monitored. This will be part of the daily site diary book 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. 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. The inspections will be undertaken during normal operating hours, not during breaks. The inspection will include check of concrete surfacing, acceptance of loads and tipping/loading activities.	A minimum of 2 visual monitoring inspections will be undertaken per day. During dry / windy conditions, 3 inspections will be undertaken per day. One VMC will be filled out each day and/or recorded in the Daily Site Diary, and kept in the Site Office. In the event of dust identification, the procedure and actions set out in Section 5 of this DEMP will be implemented.
10	Air emissions awareness training	All staff receive air emissions awareness training at site induction and through regular toolbox talks to engender awareness on emissions reduction.	All staff receive air emissions awareness training at site induction and through regular toolbox talks. The training is done in-house.	All staff receive internal air emissions awareness training at site induction and through regular toolbox talks.
11	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.

Table 6. Site Dust Control Measures				
Ref	**Abatement Measure**	**Description/Effect**	**Overall Consideration and Implementation**	**Trigger for Implementation**
Preventative Measures				
12	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 visual monitoring checklist and appropriate action taken upon repeat offences.
13	Higher Tier generators used where possible (currently no generators used on site – this measure is only in the event generators are required and not fed by mains electricity supply).	There are currently no generators on site. For permanent infrastructure requiring constant power, in the very unlikely event it is not fed by main electric 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.
14	Dusty load response procedure	Upon entering the site, loads are inspected on the weighbridge by staff member responsible for waste ticket collection/examination. Waste composition information is relayed onto machine driver and yard manager via two-way radio. A second inspection is undertaken during tipping. 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 internally under suppression from handheld hoses as well as the fixed dust suppression systems, adsorbing any dust generated. To note, it is the overall responsibility of the Site Manager to implement the dusty load response procedure.	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.
15	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 D). 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 highway. 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. An excessive spillage of materials anywhere within the site or on the adjacent highway will be dealt with immediately by sweeping of the surface and litter picking if required. Such a spillage and the action	Visual Inspections will identify unacceptable conditions and trigger the litter pick in addition to the daily scheduled litter pick. Records of inspections or remedial actions will be made in the site diary.

Table 6. Site Dust Control Measures				
Ref	**Abatement Measure**	**Description/Effect**	**Overall Consideration and Implementation**	**Trigger for Implementation**
Preventative Measures				
			taken will be recorded in the site diary. The EA can inspect the daily site diaries during inspections.	
16	Records of visual site inspections recorded	Records of visual site inspections recorded in Site Diary and on visual monitoring checklist.	Records allow for easy review and identification of dust sources in the event of complaints/ emission incident etc.	Results and checklist of visual inspections are to be filled out and recorded each time.

4.4 Water for suppression will be primarily sourced from onsite attenuation lagoon. The lagoon storage capacity is conservatively assessed as 660 m^3. Alternative sources of water may include mains supply (conservatively assessed as 50 m^3 per day). There will also be temporary lagoons at different phases including additional temporary capacity up to 3,335 m^3.

4.5 The estimated worst-case water consumption of on-site operations is calculated below:

Table 7. On site worst case water consumption	
Dust suppression Activity	**Worst Case Water Consumption (per day)**
Water Bowser	10 m^3 x 4 site loops = 40 m^3 The bowser will need filling up 4 times per day.
Wheel wash	Daily top up of 2 m^3
Maintenance (cleaning, washing down)	Estimated at 0.5 m^3
Total	**42.5 m^3**

4.6 Based on the worst-case scenario in Table 7, the water capacity at the site can accommodate site operations.

4.7 In the event water supply fails, the Operator will cease all external loading operations. This would occur in liaison with the Local Authority and Environment Agency.

4.8 During drought / dry conditions, in the event water use is rationed, the waste operations would be stream lined and only certain operations would take place. This may include only limiting haulage to certain times of the day.

5.0 PARTICULATE MATTER MONITORING

5.1 A daily site inspection will be undertaken by the Operator 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 locations across the site and the external location (locations seen in drawing 213189/D/008), 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 on the visual monitoring checklist 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 surfacing, 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 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 µg/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 E).

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 operational hardstanding and public roads;
- Deploy more 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 mixed waste types which are likely to have more 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 activities externally and focus on operating within building only;
- Wet down loads in main enclosure before transferring to external loading area;
- Limit the number of loads accepted proportional to the reduction in activities;
- Deploy more misting systems, specifically targeting tipping and loading activities, including manual hosing down of stockpiles; or
- If no 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 toolbox 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.

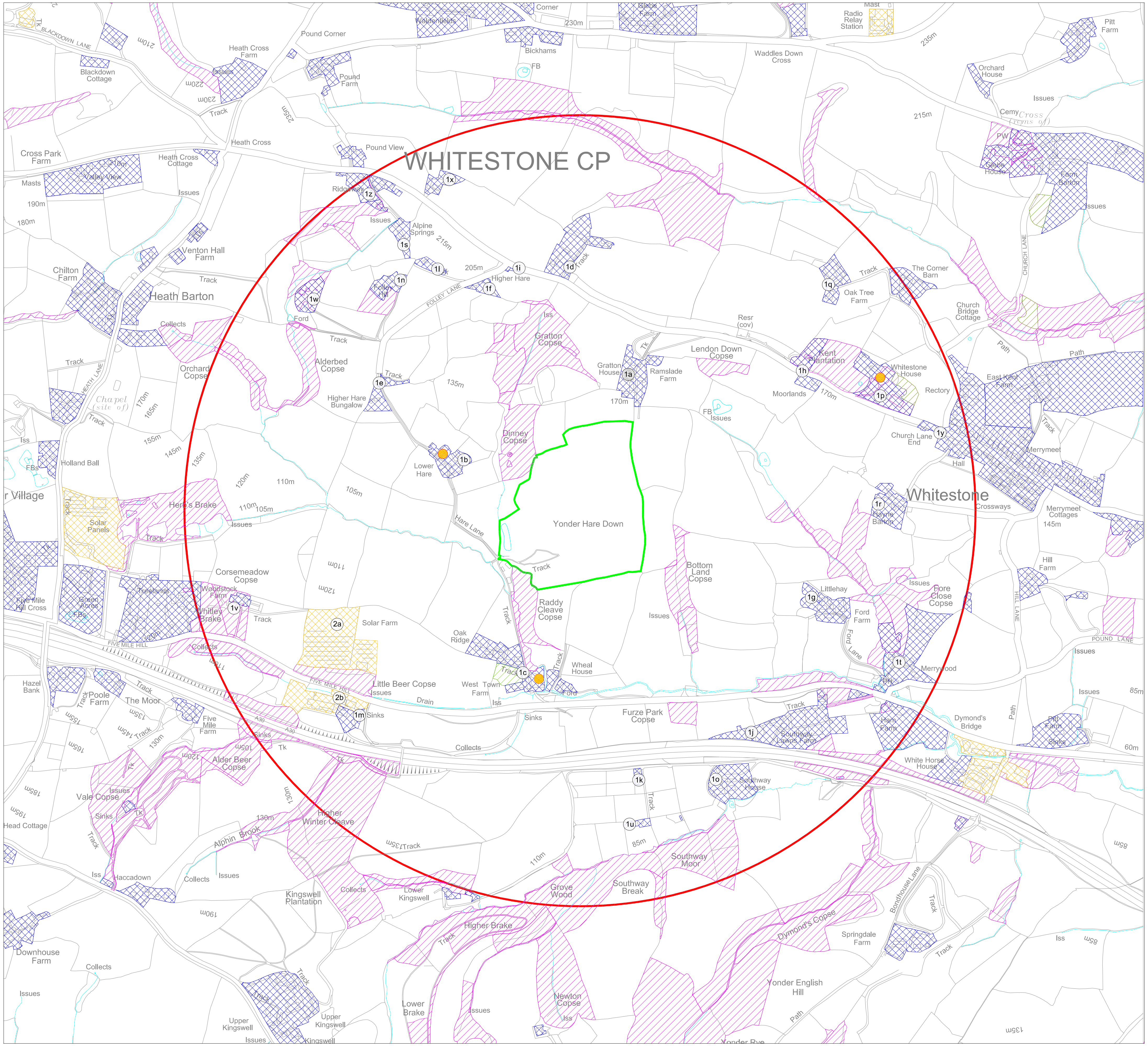
6.4 The main site telephone number, including site emergency number is displayed on the exterior of the site boundary on signage and the site telephone number and email are found on the website.

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.

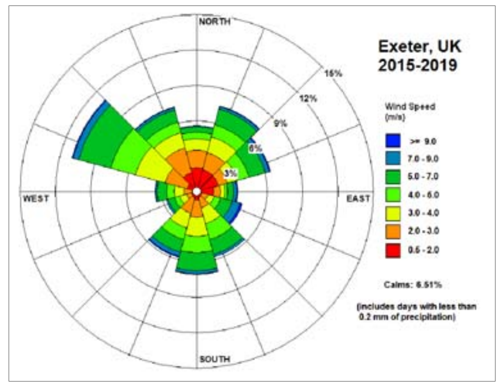
Report by:		**AA Environmental Limited** Registered office: Units 4 to 8 Cholswell Court Abingdon Oxfordshire OX13 6HX T: 01235 536042 E: info@aae-ltd.co.uk
Author:	Kristian Wood BSc (Hons) MSc	
Reviewer:	Matthew Lawman BSc (Hons) MSc	
Date:	May 2022	

DRAWINGS



Key:

- Permit Site Boundary
- 1km Radius
- Listed Buildings
- Commercial/Industrial Receptors
- Residential Receptors
- Priority Habitat - Deciduous Woodland
- Priority Habitat - Traditional Orchard
- Surface Water Course Receptors



Rev.	Details	Drawn / Chkd.	Date

Project

213189
Lower Hare Farm

Title

Site Receptor Plan

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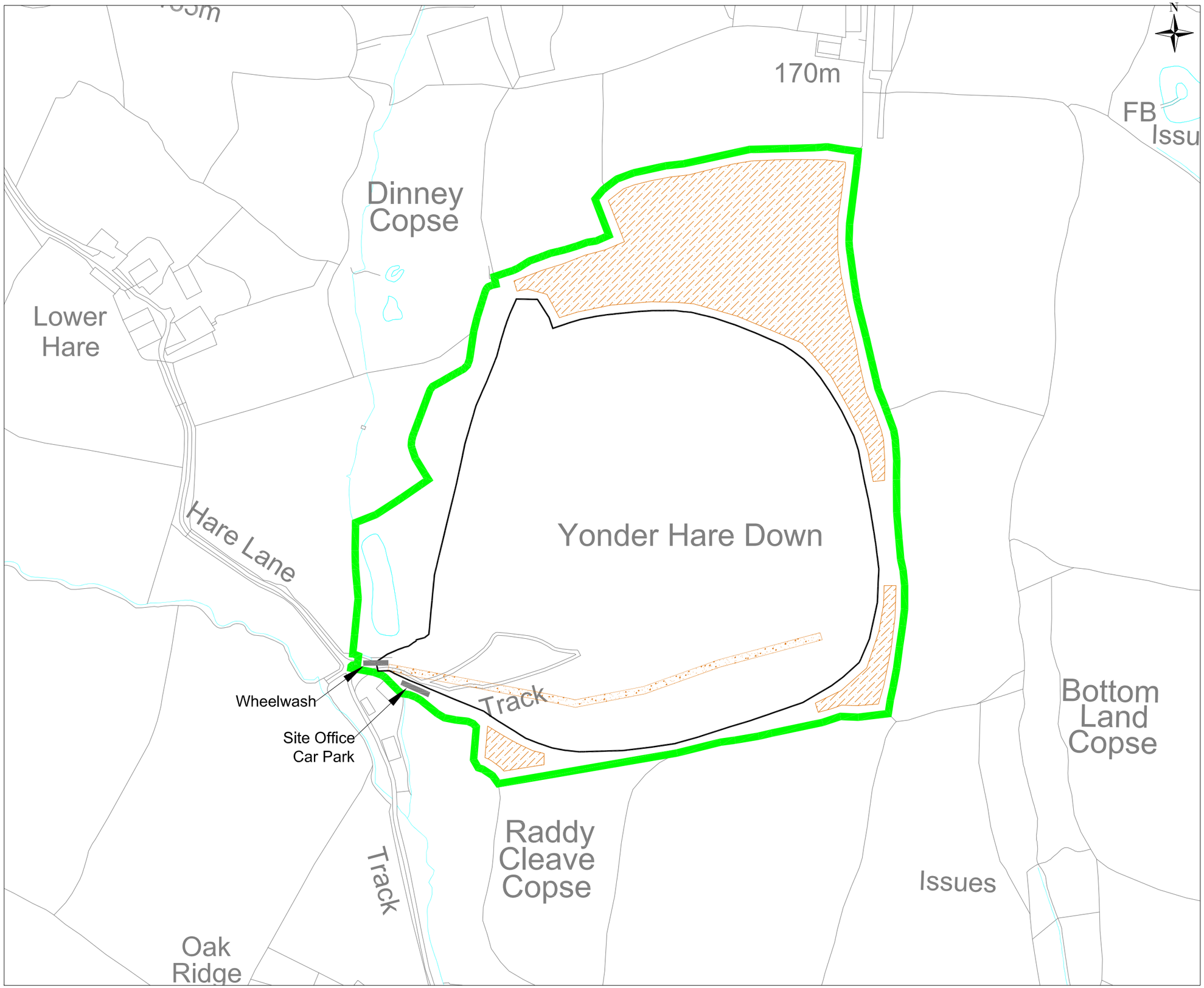
Scale	Date Nov'21		Drg. No.	Rev.
1:10,000@A3	Drawn KE	Chkd. EB	213189/D/002	



Key:

- Permit Site Boundary
- Extent of Earthworks
- Haul Route
- Indicative Topsoil Storage

Notes:

1. The Topsoil storage location will be in accordance with the Ecological Mitigation Plan and/or the Planning Permission.
2. Haul route location will change dependent on the phase of work.
3. There is no crushing or screening on site.

Rev.	Details	Drawn / Chkd.	Date

Project

213189
Lower Hare Farm

Title

Site Layout Plan

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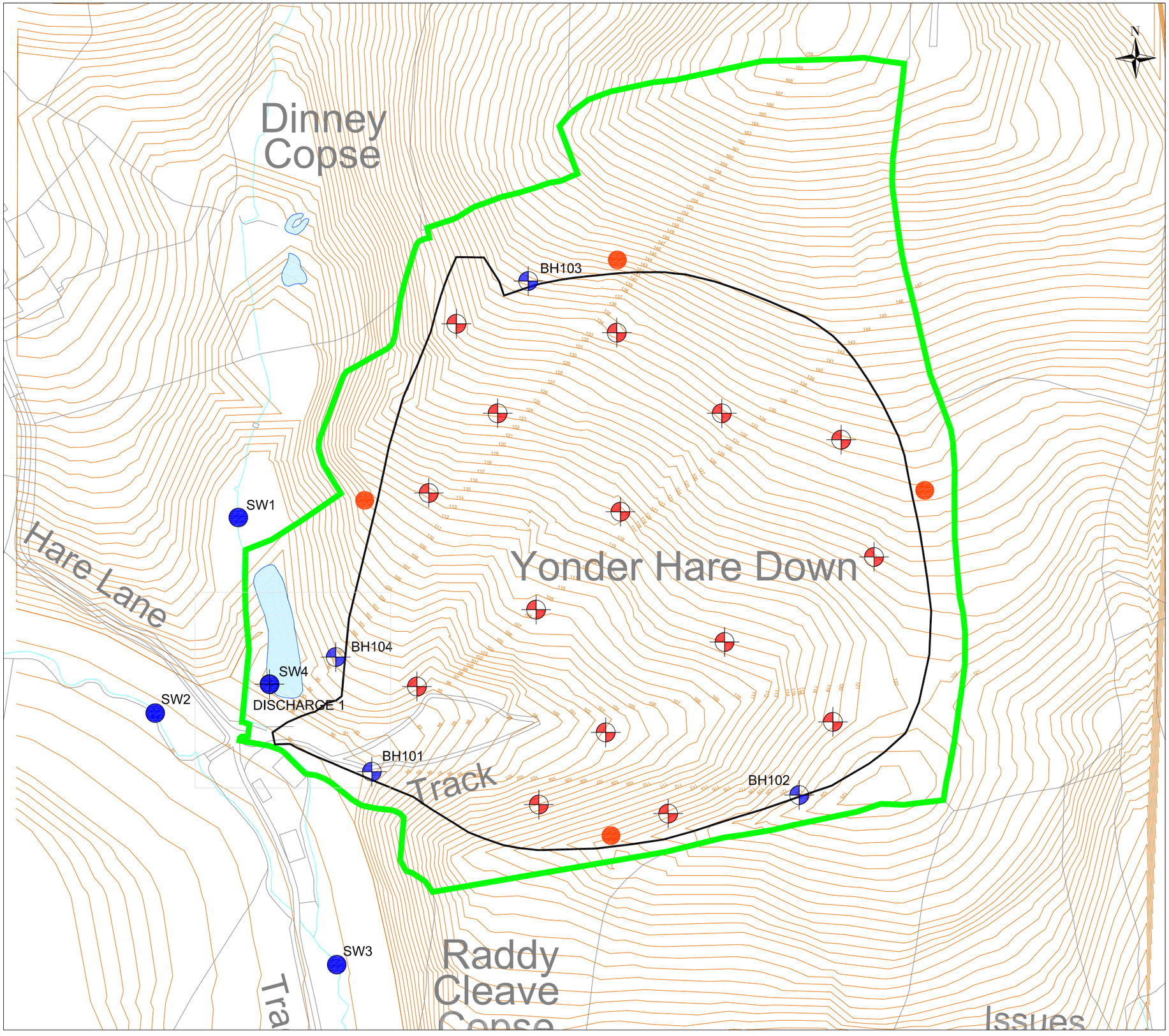
Environmental Consultants

Scale	Date	Drawn	Chkd.	Drg. No.	Rev.
1:2,500@A3	Nov'21	KE	EB	213189/D/004	



Key:

- Permit Site Boundary
- Existing Ground Level (m AOD)
- Extent of Earthworks
- Groundwater Monitoring Boreholes
- Surface Water Monitoring Location
- Visual Dust Monitoring Location
- Surface Water Pond
- Surface Water Course
- Post in-waste gas monitoring locations

Surface Water Monitoring Point Coordinates		
ID	X	Y
SW1	285558	93422
SW2	285516	93313
SW3	285609	93184
SW4 (Discharge Point)	285574	93328

Rev.	Details	Drawn / Chkd.	Date

Project
213189
Lower Hare Farm

Title
Monitoring Plan

AA Environmental Ltd
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Environmental Consultants

Scale	Date	Drg. No.	Rev.
1:2,000@A3	May'22	213189/D/008	
	Drawn: KE / Chkd.: EB		

Appendix A
Emissions Risk Assessment

Assessment of fugitive emissions

Hazard	Receptors	Harm	Pathway	Hazard Receptor Significance	Likelihood of Hazard Receptor Linkage	Magnitude	Justification	Risk Management	Residual Risk
To Air									
Dust from vehicle operations from external haul roads. Dust from operations and handling of wastes. Dust from importation of wastes. Particulate emissions from vehicle exhausts and exhausts from generators. Debris falling off vehicles and dusts caused by re-suspension of mud on the highway/haul road. Dust from waste recovery activities.	Surrounding receptors shown on drawing 213189/D/002.	Harm to human health, respiratory irritation and illness.	Air then inhalation.	Moderate	Possible	Medium	Permitted wastes include wastes with small particle sizes and potential to generate dust, especially during re-grading. Haulage, importation, and placement of waste have the potential to generate dusts from off-site movements during prolonged dry periods. The Operator will implement this dust emissions management plan.	Site wide speed limit set at 5 mph for all HGVs. All works will be undertaken in accordance with the Dust Emissions Management Plan. Haul route to be compacted and maintained, with repairs made within 24 hours. Road sweeping and surface maintenance will be implemented, with access point swept and maintained daily. Weather will be monitored and site operations limited accordingly./ higher frequency of water suppression.	Low
		Nuisance – Visual soiling/damage, deposit on cars, homes, clothing etc.	Air then deposition.	Mild	Possible	Low			
		Potential irritant, loss of habitat and damage to species.	Air then deposition in terrestrial habitats.	Mild	Unlikely	Very Low			

Appendix B
Water Bowser Example

Contractor LGP Tanker

The MAJOR LGP Tanker is a robust vehicle designed and manufactured with the larger producer or contractor in mind. The MAJOR LGP Tanker is unique in design, in that the barrel is supported by a separate chassis.

The position of the axle relative to the machine length means that a perfect balance is achieved with 80% of the weight running on the tanker's axle and the remainder being carried on the tractor drawbar.

Tyre	28.1 R26	30.5 R32	800/60/R34
W (mm)	740	760	800
D (mm)	1780	1830	1824
2050 LGP	•	•	•
2200 LGP	n/a	n/a	n/a
2250 LGP	•	•	•
2400 LGP	•	•	•
2600 LGP	n/a	•	•
3100 LGP	n/a	n/a	•

Axle

Heavy duty commerical specification axle

Safety breakaway

Fitted with safety breakaway cable for safer use on public highways.

Drawbar

Drawbar is fitted with rubber buffers to give a smoother and safer journey

Hydraulic Brakes

Hydraulic brakes as standard ensuring compliance with the regulations for this model of tanker

Finish

Contractor LGP tankers can be supplied with a painted or galvanised finish.

Internal baffle plates

Internal baffle plates improve operator driver safety by preventing wave motions during transport.

The tanker is baffled to prevent 'wave' motions during transport. It is mounted on wide support wear plates to spread the weight reducing tension and stress. 6" filler points are placed on the sides and rear of the tank. These tankers are painted the traditional MAJOR green finish as standard. All MAJOR LGP and Alpine tankers are fitted with hydraulic brakes and side and rears lights as standard and comply fully with regulations for agricultural vehicles.

Models and Technical Data

Model	Tyre options	Capacity		OA Length	OA Width	OA Height	Wheel Recess	Weight (Kg)	
		Gallon	Litres	(Hitch to coupling ball)	(Depends on tyre)	Hitch @ 450mm		Empty	Full
2050LGP	28.1 R26	2,050	9,319	6.9m	2.6m	3.3m	YES	3,882	13,201
	30.5 R32	2,050	9,319	6.9m	2.6m	3.3m	YES	3,882	13,201
	800/60/R34	2,050	9,319	6.9m	2.6m	3.3m	YES	3,882	13,201
2200 IND	550/60/22.5	1,495	6,796	5.9m	2.5m	2.9m	No	2,400	9,196
2250LGP	28.1 R26	2,250	10,228	6.5m	2.6m	3.4m	YES	3,920	13,630
	30.5 R32	2,250	10,228	6.5m	2.6m	3.4m	YES	3,920	13,630
	800/60/R34	2,250	10,228	6.5m	2.6m	3.4m	YES	3,920	13,630
* 2400LGP	28.1 R26	2,400	10,910	6.9m	2.6m	3.4m	YES	4,250	15,160
	30.5 R32	2,400	10,910	6.9m	2.6m	3.4m	YES	4,250	15,160
	800/60/R34	2,400	10,910	6.9m	2.6m	3.4m	YES	4,250	15,160
2600LGP	29.5/75 R25	2,600	11,819	7.0m	2.6m	3.4m	YES	4,350	16,169
	30.5 R32	2,600	11,819	7.0m	2.6m	3.4m	YES	4,350	16,169
	800/60/R34	2,600	11,819	7.0m	2.7m	3.4m	YES	4,350	16,169
2800LGP	BKT 181 tyre	2,800	12,712	7.3m	2.6m	3.4m	YES	4,550	16,369
3100LGP	30.5 R32	3,100	14,092	8.1m	2.6m	3.5m	YES	4,650	18,742
	800/60/R34	3,100	14,092	8.1m	2.7m	3.5m	YES	4,650	18,742

Options & Accessories

We offer a full custom design and build programme for specialist contractor slurry tankers. Below is a small sample of the optional components that we offer. Please speak to your authorised MAJOR dealer for more specific advice.

Filling

Autofiller

6" or 8" hydraulic coupler. It is ideal for slurry pits that are difficult to access. It reduces your filling time by half. A galv tripod is supplied as standard.

Top Fill

The hydraulically controlled top fill is used to fill the tank from the top. This option allows for high flow rates and fills the tank to its optimal level.

Spreading/Emptying

Raingun

Centre mounted or rear mounted in conjunction with a garda pump fitted with stone trap as standard.

Road Blaster Unit

This unit is fitted beneath the tanker for high-pressure road washing. The angle of the nozzles can be adjusted for tough conditions

Water Spinner

This unit is for dust suppression on roads, building sites and waste disposal plants

Washdown Hose Assembly

Consists of a 2" gate valve and 2" quick hose connector

Additional Equipment

Double LED Lights

Double LED lights and LED side markers can be fitted for increased operator safety

Fully Opening Rear Door

These doors are mounted on hinges. They are locked by six threaded hooks.

Full Length Sight Tubes

To allow the operator to easily identify how much liquid remains in the tank.

Toolboxes

Two sizes available:
1230 (L) x 370 (W) x 370 (D)
760 (L) x320 (W) x 250 (D)

Mud Flaps

6mm heavy duty rubber mud flaps

Rear Linkages

Linkages can be added to your tanker to allow slurry injector units to be fitted at a later stage.

Pumps

Type	Code	Description	Suitable for
PTO	MEC900MLF MEC110MLF MEC135MLF	Standard PTO driven vacuum pump	Traditional spreading, trailing shoe
GARDA	GARDA9000 GARDA11000 GARDA13500	Combination vacuum pump/ centrifugal pump, with change over	Traditional spreading, rain gun, trailing shoe, umbilical systems, jetting, blaster bar for road cleaning
HYDRAULIC	MEC900HLF-S MEC110HLF-S MEC135HLF-S	Standard hydraulically driven vacuum pump	Traditional spreading, trailing shoe
BAUER	SX1000	Centrifugal Pump	Rain gun, trailing shoe, umbilical systems
ELBA	ELBA 6500TR	Centrifugal Pump	Rain gun, trailing shoe, umbilical systems
DODA	DODA A27CWBG	Centrifugal Pump	Rain gun, trailing shoe, umbilical systems

Principle

The vacuum system creates an atmospheric pressure difference in order to fill or empty the tanker. By creating a vacuum (depression) in the tank, slurry can be sucked. When spreading, the principle is reverse: the tank is pressurized by the pump, which allows it to expel the slurry.

What pump capacity to choose from

An appropriate capacity is used to create the vacuum before starting to fill the tank or to pressurize it during the spreading phase. The pump then "merely" has to keep this vacuum or pressure. Choosing too large a pump means wasting tractor power, with a risk of unnecessary wear and tear. The effective vacuum rate is always the same, whatever the chosen type of pump may be. Once the capacity of the pump is selected, it is possible to choose given type of greasing and cooling system.

Cooling

Next to the air flow through the pump, most vacuum pumps are also fitted with vanes acting as a conduction cooling system. However, for a more efficient cooling, it is possible to choose the "Ballast Port" system, which is a low-cost solution. This system is used to cool the pump by injecting fresh air in its housing and to constantly work at 60% vacuum. It is mounted on the PNR 155.

Vanes

Most pump systems supplied on Major tankers have vanes. The air flow is directed by a deflecting valve in order to spread or suck slurry. All normal vacuum pumps create the same "vacuum"; only the air flow capacity of the pump matters. The range of vacuum pumps with vanes supplied by Major are 9000,11000 and 13,500 l/min.

PTO Pump

Garda Pump

Hydraulic Pump

Bauer

Elba Pump

Doda Pump (with arm for umbillical systems)

Appendix C
Housekeeping Requirements

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 / visual monitoring form
Road sweeper brush	Access / egress to the site	Daily - if mud on road is identified	Nominated operative / third party contractor	Daily Site Diary / visual monitoring form
Concrete hardstanding HGV route inspection – cleared of debris using front loader	Internal haul route	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
Complaints Form & Procedure

Complaints Procedure

213189/CP

INTRODUCTION

This Complaints Procedure outlines how the Operator will respond in the event of a complaint. A complaint may arise relating to the site permitted activities involving a nuisance (dust, noise, odour, pests). This procedure contains information on how any complaint will be investigated and any actions taken as a result of the complaint.

KEY CONTACTS

The key contacts will be shown on the site notice board at the site entrance. Alternatively, any complaints can be made at the site to any site operative and/or the Site Manager.

PROCEDURE

1. Any complaints made will be immediately logged by the Site Manager and/or Site Operative. In the event a complaint is made to a Site Operative, the Site Operative will refer the complaint to the Site Manager. If able to do so, the complainant details will be taken on initial contact either by phone or in person. The response time is typically within 1 hour.

2. The Site Manager (or nominated operative) will discuss any concerns with the complainant directly within 1 working day of the complaint being made; and request contact details to notify the complainant of any updates/corrective measures. The complaint will be logged using the Complaint Form (attached) and given a unique reference number.

3. The Site Manager will review the site activities and ensure control measures are in accordance with the Site's Management Systems. This review will typically happen in conjunction with point 1 and review will be undertaken within 2 working days of complaint being made.

4. Once initial contact and review of the site has been undertaken, the Site Manager will investigate the location of concern raised in relation to the site i.e. at a local receptor location and/or public highway to inspect the impact on the receptor. This will occur within 3 working days.

5. The Site Manager will notify the complainant of any updates to the control measures / site operations. Control measures may be corrective and/or preventative and include additional control measures and/or increase the frequency of an existing control measure. Alternatively, the design of the site operations may change to decrease nuisance to that receptor. The notification will be within 1 week of the complaint being made.

6. In the event the same issue persists, the Site Manager will further review site operations and control measures. This may require a temporary cessation of certain operations whilst additional measure is implemented. The works will not recommence until further control measures have been incorporated and a review of effectiveness has been agreed / witnessed by the Site Manager. The complainant will be kept abreast of further measures. This is likely to be within 1-2 weeks subject to what the complaint is, severity of complaint and associated activity taking place.

7. In the event of an out of hour complaint, the complaint will be picked up on the next working day and dealt with as per point 1-6 above.

RECORDS

On site Records
A copy of this procedure is kept on site and briefed to all site operatives upon site induction. Any identified complaints, incidents or accidents, as well as corrective measures, are recorded in the Complaint Form. Copies of the complaint forms are kept on site.

Review
This procedure is reviewed on a yearly basis or post-incident to ensure it remains up-to-date with the site operations. The review procedure would involve the Senior Management Team and site team collectively to establish the root cause and the best available control techniques. The review will take place within 1 month of the incident.

Appendix E

Extract on Grading Classification in DEFRA Code of Practice

DEFRA Code of Practice – Principles of litter, refuse and detritus in highway and hard surface setting

Set A: litter and refuse in both relevant highway and hard surface setting

Grade A
No litter or refuse

Grade C
Widespread distribution of litter and/or refuse with minor accumulations

Grade B
Predominately free of litter and refuse apart from some small items

Grade D
Heavily affected by litter and/or refuse with significant accumulations

Set C: principles of detritus grading in a relevant highway setting

Grade A
No detritus

Grade C
Widespread distribution of detritus with minor accumulations

Grade B
Predominantly free of detritus except for some light scattering

Grade D
Heavily affected by detritus with significant accumulations