Air Quality Assessment

Kilmarnock Farm, Charlwood

January 2019

www.phlorum.com

Air Quality Assessment

Kilmarnock Farm, Charlwood

January 2019

Document Control:

Project no.	Project
8138	Kilmarnock Farm, Charlwood Road RH11 0JY

Client	
WS Planning & Architecture	Europe House, Bancroft Road, Reigate, Surrey RH2 7RP

Report No.	Version	Date of issue	Prepared by	Checked
8138 AQ draft	Draft	07/12/2018	J Kirk	N Jenkins
8138 AQ Final	Final	04/01/2019	-	N Jenkins

Phlorum Limited

Southern Office: Unit 12, Hunns Mere Way, Woodingdean, Brighton, East Sussex, BN2 6AH

T: 01273 307 167 E: info@phlorum.com

Contents

1. Introduction

1.1 Phlorum Ltd has been commissioned by WS Planning & Architecture to undertake an air quality assessment in connection with a proposed soil recycling and concrete crushing facility at Kilmarnock Farm, Charlwood (the 'Site').

1.2 The proposals are for a brick and concrete recycling facility. The site would receive a mix of bricks, concrete and soil which would be screened, sorted and crushed to provide 6FC crush material and soil. If granted the site would apply to the Environment Agency (EA) for a permit to produce 75,000 tonnes per annum of crushed material. The facility would be located within the existing boundary of Kilmarnock Farm. The location of the Site is shown in Figure 1.

1.3 The Site falls within the district of Horsham District Council (HDC), in West Sussex. HDC has declared two Air Quality Management Areas (AQMAs) within the district due to exceedences of the national air quality objectives for nitrogen dioxide (NO_2). No exceedences of the air quality objectives have been identified in the vicinity of the Site.

1.4 HDC has produced its own air quality and planning guidance[1]which sets out the process by which air quality should be considered within the planning process. This development proposals have been assessed against this guidance.

1.5 This report addresses air quality impacts associated with the proposed development. Potential sources are identified in the context of existing air quality and emissions sources and the nature and location of receptors.

Scope of Assessment

1.6 The assessment considers the impact of the soil recycling and concrete crushing facility on local air quality and identifies the risk of dust impacts at nearby sensitive receptors.

1.7 Based on the current design layout and criteria set out within the HDC air quality and planning guidance, the development would fall within the Medium category of development (>1,000m^2 commercial industrial). A full air quality assessment is not required for Medium category developments, other than for exposure. As the proposed development would not introduce any sensitive receptors (i.e. residential, educational or health care facilities) to the Site, an assessment of air quality in relation to exposure at the Site is not considered necessary.

[1] Horsham District Council (2014) Planning Advice Document: Air Quality & Emissions Reduction Guidance, May 2014

1.8 However, all Medium category developments within the district of Horsham are expected to include Type 1 and Type 2 mitigation. These are considered in section 7 of this report.

1.9 Potential construction impacts have been assessed in accordance with the Institute of Air Quality (IAQM) guidance on assessing impacts from demolition and construction activities[2].

1.10 Potential impacts of the operational soil re-cycling and concrete crushing facility on local air quality have also been considered and assessed against the IAQM guidance in the absence of any other appropriate guidance for assessing dust emissions.

1.11 Based on the development proposals it is anticipated that there would be no more than 30 additional Heavy Duty Vehicles (HDV) generated on the adjacent road network on any given day. The Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) air quality guidance[3] sets out the criteria to assist in establishing when an air quality assessment will be required. These criteria indicate that significant impacts on air quality are unlikely to occur where a development results in less than 25 HDV movements per day in locations within or adjacent to an AQMA and less than 100 HDV outside of an AQMA. It is therefore expected that operational traffic generated by the proposed development would result in a negligible impact on local NO_2 and PM_{10} concentrations and has not been considered any further in this assessment.

1.12 As the proposals are for a soil recycling facility, West Sussex County Council (WSCC) were consulted with regards the scope of the assessment. The relevant officer (Jane Moseley) at WSCC requested that we contract the air quality officer at HDC to discuss and agree the scope of the assessment as they act as consultants to the Council on air quality issues. The scope of the assessment has been discussed and agreed with Anna Czerska, Environmental Protection Officer, at HDC.

[2] IAQM (January 2014) Guidance on the Assessment of Dust form Demolition and Construction Version 1.1
[3] EPUK & IAQM (May 2017) Land-Use Planning & Development Control: Planning for Air Quality

2. Policy Context

The UK Air Quality Strategy (UKAQS)

2.1 The UKAQS[4] sets a number of "standard" (AQS) concentrations for a number of key pollutants that are to be achieved at sensitive receptor locations across the UK by various "objective" dates. The sensitive locations at which the standards and objectives apply are places where the population is expected to be exposed to the various pollutants over the particular averaging period. Thus, for those objectives to which an annual mean standard applies, the most common sensitive receptor locations used to measure concentrations against the set standards are areas of residential housing, since it is reasonable to expect that people living in their homes could be exposed to pollutants over such a period of time. Schools and children's playgrounds are also often used as sensitive locations for comparison with annual mean objectives due to the increased sensitivity of young people to the effects of pollution (regardless of whether or not their exposure to the pollution could be over an annual period). For shorter averaging periods of between 15 minutes, 1 hour or 1 day, the sensitive receptor location can be anywhere where the public could be exposed to the pollutant over these shorter periods of time.

2.2 The objectives adopted in the UK are based on the Air Quality (England) Regulations 2000[5], as amended, for the purpose of Local Air Quality Management. These Air Quality Regulations have been adopted into UK law from the limit values required by European Union Daughter Directives on air quality.

2.3 Obligations under the Environment Act 1995 require local authorities to declare an AQMA at sensitive receptor locations where an objective concentration has been predicted to be exceeded. In setting an AQMA, the local authority must then formulate an Air Quality Action Plan (AQAP) to seek to reduce pollution concentrations to values below the objective levels.

2.4 HDC has declared two AQMAs due to exceedances of the annual mean AQS for NO_2, located in Storrington and Cowfold, approximately 30km and 16.6km SSW of the application site. A further AQMA is located in the neighbouring borough of Crawley, which is 2.5km SE of the application site.

4 Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volumes 1 and 2) July 2007.
5 The Air Quality (England) (Amendment) Regulations 2002 - Statutory Instrument 2002 No.3043.

National Planning Policy Framework (NPPF)

2.5 The NPPF[6], which was revised in July 2018, sets out the Government's planning policy for England. At its heart is an intention to promote more sustainable development. A core principle in the NPPF that relates to air quality effects from development is that planning should "contribute to conserve and enhance the natural and local environment". In achieving this, it states in paragraph 170 that:

"Planning policies and decisions should contribute to and enhance the natural and local environment by: […]

preventing new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability […]".

2.6 With regard to assessing cumulative effects the NPPF states the following at paragraph 180:

"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development."

2.7 Regarding compliance with relevant limit values and national objectives for pollutants the NPPF, paragraph 181 states:

"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."

6 Department for Communities and Local Government (DCLG), (2018), National Planning Policy Framework.

2.8 The NPPF offers a broad framework but does not afford a detailed methodology for assessments. Specific guidance for air quality continues to be provided by organisations such as the Department for Environment, Food and Rural Affairs (Defra), Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM).

National Planning Practice Guidance (PPG)

2.9 Reference ID 32 (Air Quality) of the National Planning Practice Guidance (PPG)[7], which was updated in March 2014, provides guiding principles on how planning can take account of the impact of new development on air quality. The PPG summarises the importance of air quality in planning and the key legislation relating to it.

2.10 As well as describing the importance of International, National and Local Policies (detailed elsewhere in this report), it summarises the key sources of air quality information. It also explains when air quality is likely to be relevant to a planning decision:

"Whether or not air quality is relevant to a planning decision will depend on the Proposed Development and its location. Concerns could arise if the development is likely to generate air quality impact in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation (including that applicable to wildlife) [...]

When deciding whether air quality is relevant to a planning application, considerations could include whether the development would:

- *Significantly affect traffic in the immediate vicinity of the Proposed Development site or further afield. This could be by generating or increasing traffic congestion; significantly changing traffic volumes, vehicle speed or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; adds to turnover in a large car park; or result in construction sites that would generate Heavy Goods Vehicle flows over a period of a year or more.*

- *Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; or extraction systems (including chimneys) which require approval under pollution control legislation or biomass boilers or biomass-fuelled CHP plant; centralised boilers or CHP plant burning*

7 Planning Practice Guidance (PPG) 32. (2014). Air Quality. http://planningguidance.planningportal.gov.uk/blog/guidance/air-quality/.

other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area.

- *Expose people to existing sources of air pollutants. This could be by building new homes, workplaces or other development in places with poor air quality.*

- *Give rise to potentially unacceptable impact (such as dust) during construction for nearby sensitive locations.*

- *Affect biodiversity. In particular, this is likely to result in deposition or concentration of pollutants that significantly affect a European-designated wildlife site, and is not directly connected with or necessary to the management of the site, or does it otherwise affect biodiversity, particularly designated wildlife sites."*

2.11 Details are also provided of what should be included within an air quality assessment. Key considerations include:

- Baseline local air quality;
- Whether the proposed development could significantly affect local air quality during construction/operation; and
- Whether the development is likely to expose more people to poor air quality.

2.12 Examples of potential air quality mitigation measures are also provided in the PPG.

Local Planning Policy

2.13 The Horsham District Planning Framework (HDPF), adopted in November 2015, is the overarching planning document for Horsham district outside the South Downs National Park (SDNP). The HDPF sets out the planning strategy for the years up to 2031 to deliver the social, economic and environmental needs for the district. The policy that relates to air quality is Policy 24 Environmental Protection which states:

"The high quality of the district's environment will be protected through the planning process and the provision of local guidance documents. Taking into account any relevant Planning Guidance Documents, developments will be expected to minimise exposure to and the emission of pollutants including noise, odour, air and light pollution and ensure that they: ….

(4) minimise the air pollution and greenhouse gas emissions in order to protect human health and the environment;

(5) Contribute to the implementation of Local Air Quality Action Plans and do not conflict with its objectives;

(6) Maintain or reduce the number of people exposed to poor air quality including odour. Consideration should be given to development that will result in new public exposure, particularly where vulnerable people (e.g. the elderly, care homes or schools) would be exposed to the areas of poor air quality; and

(7) Ensure that the cumulative impact of all relevant committed developments is appropriately assessed.

Horsham District Council Air Quality Planning Advice Document

2.14 Horsham District Council's air quality planning advice document sets out a simplified approach to assessing potential impacts on local air quality in relation to planning applications and has been used to determine the scope of this assessment. The three step process has been summarised in Appendix B.

3. Baseline

3.1 This chapter is intended to establish prevailing air quality conditions in the vicinity of the application site.

UK-AIR Background Pollution

3.2 Defra provides estimated background concentrations of the UKAQS pollutants at the UK Air Information Resource (UK-AIR) website[8]. These estimates are produced using detailed modelling tools and are presented as concentrations at central 1km^2 National Grid square locations across the UK. At the time of writing, the most recent background maps were from November 2017 and based on monitoring data from 2015.

3.3 Being background concentrations, the UK-AIR data are intended to represent a homogenous mixture of all emissions sources within the general area of a particular grid square location. Concentrations of pollutants at various sensitive receptor locations can, therefore, be calculated by modelling the emissions from a nearby pollution source, such as a busy road, and then adding this to the appropriate UK-AIR background datum.

3.4 The predicted background pollution concentrations for NO_2 and PM_{10} for 2016 to 2018 are presented in Table 3.1. These data were taken from the central grid square location closest to the application site (i.e. grid reference: 524500, 138500).

Table 3.1: 2016 to 2018 background concentrations of pollutants at the application site

Pollutant	Predicted background concentration (µg.m^{-3})			Averaging period	Air quality standard concentration (µg.m^{-3})	Objective: to achieve the standard by
	2016	2017	2018			
NO_2	11.1	10.8	10.5	annual mean	40	31 December 2005
PM_{10}*	12.1	12.0	11.9	(gravimetric) annual mean	40	31 December 2004

*Proposed PM_{10} objectives for 2010 were dropped in the 2007 Air Quality Strategy (there is no AQS for $PM_{2.5}$ in England, however local authorities are required to work towards reducing concentrations).

8 Defra: UK-AIR. www.uk-air.defra.gov.uk (accessed02/02/2018).

3.5 The data in Table 3.1 show that annual mean background concentrations of NO_2 and PM_{10} in the vicinity of the application site between 2016 and 2018 were predicted to be below their respective AQSs. The data show that in 2018, NO_2 and PM_{10} concentrations were predicted to be below the AQS by 74% and 70%, respectively.

3.6 Concentrations of both pollutants were predicted to decline each year, which is principally due to the forecast effect of cleaner vehicles being rolled out. It is noted that such improvements have not been universally realised.

Local Sources of Monitoring Data

3.7 Monitoring at background locations is considered an appropriate source of data for the purposes of describing baseline air quality.

Automatic Monitoring

3.8 HDC currently undertakes automatic (continuous) monitoring at 3 sites. Automatic monitoring is also undertaken within the neighbouring borough of Crawley at Gatwick East. The most recent data available from these sites are included in Table 3.2.

Table 3.2: NO_2 data from automatic monitors

Monitor	Type	Distance from the application site (km)	NO_2 annual mean concentration ($\mu g.m^{-3}$)		
			2015	2016	2017
Horsham Park Way	R	10.95 Km SW	26.5[a]	28.6	26.2
Storrington AURN	R	29.15 Km SSW	21.3	25.1	22.7
Cowfold	R	16.60 Km SSW	25.5	27.2	29.5
Gatwick East	O/SI	5.37 Km NE	25[b]	29	-

Note: "O/SI" Other/Suburban Industrial; "R" = roadside.

[a] Annual mean concentration annualised by HDC

[b] Values taken from tri-located diffusion tubes as no valid data available from automatic monitor

3.9 The data in Table 3.2 show that annual mean concentrations of NO_2, in recent years, have been consistently below the $40\mu g.m^{-3}$ AQS at all four monitoring locations. However, as the monitors are roadside monitors located over 2.5km's away from the application site, concentrations are not considered to be representative of background conditions in the vicinity of the site.

3.10 PM_{10} concentrations are only recorded at one site within the district: a roadside site adjacent to Park Way in Horsham. Annual mean concentrations recorded at this site have been in the range of 18-25 µg/m^3 since 2007, less than 75% of the 40µg/m³ objective. PM_{10} concentrations are expected to meet the relevant objectives limits across the district.

Non-Automatic Monitoring

3.11 HDC operates an extensive non-automatic, NO_2 diffusion tube monitoring network across the area. The most recently available monitoring data for diffusion tubes located within approximately 8km to 9km of the application site are included in Table 3.3. Diffusion tube monitoring is also undertaken in the adjacent Crawley Borough Council. The closest monitoring sites are located within 0.89km to 1.59km east south-east from the application site and are also set out in Table 3.3.

Table 3.3: Monitoring data from NO_2 diffusion tubes

Monitor	Type	Distance from the application site (km)	NO_2 annual mean concentration (µg.m^{-3})		
			2015	2016	2017
Horsham 1N	R	8.7 KM SW	22.9	23.1	24.6
Horsham 10N	R	8.4 Km SW	-	-	20.8[a]
Crawley CR49 Charlwood Nursery	UB	0.89 Km ESE	16	19	-
Crawley CR50 Rowley Cottage	UB	1.59 Km ESE	19	25	

Note: "R" = roadside, "UB" = urban background.

[a] Annual mean concentration annualised by HDC

3.12 The data in Table 3.3 show that annual mean concentrations of NO_2 have been below the 40µg.m^{-3} objective at all four monitoring sites since 2015. The lowest concentrations were recorded at the urban background monitoring station CR49, which is the closest station to the application site. Concentrations of 19µg.m^{-3} were recorded in 2016 which is below the AQS by 52%. Results from this site are slightly higher but comparable to the background predictions made by UK-AIR in Table 3.1.

Summary of Data used in Assessment

3.13 To ensure conservative predictions of pollutant concentrations, no reduction has been applied to the annual mean background NO_2 and PM_{10} concentrations used in this assessment for future years. The NO_2 background concentration has been taken from the monitoring site, CR49, within Crawley Borough Council. The PM_{10} background concentration has been taken from UK-AIR (2016) in the absence of any other suitable PM_{10} monitoring data. The background concentrations used in the assessment are included in Table 3.4.

Table 3.4: Background annual mean concentrations used in this assessment

Pollutant	Concentration ($\mu g.m^{-3}$)	Data Source
NO_2	19.0	Diffusion tube CR49
PM_{10}	12.1	UK-AIR (2016)

4. Assessment Methodology

Guidance

4.1 Guidance published by the IAQM[9] on the *'Assessment of Dust from Demolition and Construction'* was used when assessing the construction phase of the proposed development. It details a number of mitigation measures that should be adopted to minimise impacts of dusts and fine particles.

4.2 The IAQM guidance was also used in assessing the impacts of the operational phase of the proposed development, in the absence of any other appropriate guidance for assessing dust emissions.

Construction Phase

4.3 The construction phase of the proposed development will involve a number of activities that could potentially produce polluting emissions to air. Predominantly, these will be emissions of dust. However, they could also include releases of odours and/or more harmful gases and particles.

4.4 The IAQM's guidance to assess the impacts of construction on human and ecological receptors has been followed in carrying out this air quality assessment. The guidance suggests that where a receptor is located within 350m of a site boundary and/or 100m of a route used by construction vehicles, up to 500m from the site entrance, a dust assessment should be undertaken. High sensitivity receptors are considered particularly sensitive when located within 20m of a works area. Figure 2 shows receptors that could be sensitive to dust that are located within 350m of the boundaries of the site.

4.5 Review of the Multi Agency Geographic Information for the Countryside (MAGIC) website[10], which incorporates Natural England's interactive maps, has identified no statutory ecological sensitive receptor within 50m of the application site. The assessment of construction impacts on ecological receptors has not therefore been included within this assessment.

9 IAQM. (2014). Guidance on the assessment of dust from demolition and construction. Version 1.1
10 Natural England and MAGIC partnership organisations. Multi Agency Geographic Information for the Countryside. http://www.magic.gov.uk/ (accessed December 2017).

4.6 The annual mean concentration of PM_{10} is well below the AQS, according to the UK-AIR background maps. This provides a good indcation that PM_{10} concentrations for both annual mean and daily mean concentrations are likely to be below the respective AQSs at the application site and adjacent uses.

4.7 The IAQM guidance suggests that Demolition, Earthworks, Construction and Trackout should all be assessed individually to determine the overall significance of the construction phase.

Construction Significance

4.8 In the IAQM dust guidance, the first step in assessing the risk of impacts is to define the potential dust emission magnitude. This can be considered 'Negligible', 'Small', 'Medium' or 'Large' for each of the construction stages. Whilst the IAQM provides examples of criteria that may be used to assess these magnitudes, the vast number of potential variables mean that every site is different and therefore professional judgement must be applied by what the IAQM refer to as a "technically competent assessor". The construction phase assessment therefore relies on the experience of the appraiser.

4.9 As such, attempts to define precisely what constitutes a negligible, small, medium or large dust emission magnitude should be treated with caution. Factors such as the scale of the work, both in terms of size and time, the construction materials and the plant to be used must be considered.

4.10 The second step is to define the sensitivity of the area around the construction site. As stated in the IAQM guidance:

"the sensitivity of the area takes into account a number of factors:

- *the specific sensitivities of receptors in the area;*
- *the proximity and number of those receptors;*
- *in the case of PM_{10}, the local background concentrations; and*
- *site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust."*

4.11 Based on these factors, the area is categorised as being of 'Low', 'Medium' or 'High' sensitivity.

4.12 When dust emission magnitudes for each stage and the sensitivity of the area have been defined, the risk of dust impacts can be determined. The IAQM provides a risk of impacts matrix for each construction stage. The overall significance for the construction phase can then be judged from the stages assessed. Again, this is subject to professional judgement.

4.13 Combustion exhaust gases from diesel-powered plant and construction vehicles accessing the application site will also be released. However, the volumes and periods over which these releases will occur are unlikely to result in any significant peaks in local air pollution concentrations and therefore this has been scoped out of the assessment.

Operational Phase

4.14 To assess the potential impacts associated with dust and PM_{10} releases during the operational phase of the process and in the absence of any other appropriate guidance for assessing dust emissions, an assessment based on the latest guidance from the IAQM on the assessment of dust from construction site activities has been undertaken, as detailed in section 4.3 - 4.12.

4.15 All sites are different and the potential for dust impacts are dependent on a number of local factors. The methodology set out in the IAQM guidance is therefore considered as a framework for assessing dust impacts and a certain level of professional judgement is required in determining the effects from each site.

4.16 The significance of identified effects is evaluated post-mitigation using professional judgement and assuming that the mitigation measure identified and set out within the assessment are implemented by way of a Dust Management Plan (DMP).

Consultation

4.17 Details of the development and proposed scope of assessment were sent to Anna Czerska, Environmental Protection Officer at HDC in November 2018. Anna responded by email, advising that HDC uses its own guidance Planning Advice Document: Air Quality & Emissions Reduction Guidance (May 2014) to secure air quality mitigation from new development. Anna also requested that an Operation Phase Mitigation Plan (OPMP) and a Construction Phase Mitigation Plan (CPMP) were included in the assessment. The proposed scope of the assessment was also accepted.

5. Construction Phase Impacts

5.1 The construction phase of the proposed development will involve a number of activities that could produce polluting emissions to air. Predominantly, these will be emissions of dust.

5.2 The estimates for the dust emission magnitude for demolition, earthworks, construction and trackout below are, where appropriate, based on the construction information provided by the client and professional experience of Phlorum staff.

Dust Emission Magnitude

Demolition

5.3 During the demolition phase the total volume of building(s) being demolished across the total site is approximately 2,500m^3, which falls into the IAQM's 'Small' dust emission category.

5.4 As such the overall dust emission magnitude for demolition is considered to be *Small.*

Earthworks

5.5 The total site has an area of approximately4,500m^2. This is considered 'Medium' with reference to the IAQM guidance, as it falls between 2,500m^2 - 10,000m^2.

5.6 However, the amount of earth proposed to be moved during the earthworks is <10,000 tonnes and confined to an area of approximately 1,500m^2 to the south of the site. This is expected to be carried out by <5 heavy earth moving vehicles. These are both considered 'Small' by IAQM.

5.7 However, given the total area of the site and to ensure a worst-case assessment, the overall dust emission magnitude for the earthworks stage is considered to be *Medium*.

Construction

5.8 The key issues when determining the potential dust emission magnitude during the construction phase include the size of the buildings/infrastructure, method of construction, construction materials and duration of build. The proposed development will use the existing buildings on site and hard-standing so there will be minimal construction taking place. The total building volume across the whole site will be <25,000m^3; this falls into the IAQM's 'Small' dust emission category. The overall dust emission magnitude for the construction stage is considered to be *Small.*

Trackout

5.9 Construction traffic, when travelling over soiled road surfaces, has the potential to generate dust emissions and to also add soil to the local road network. During dry weather, soiled roads can lead to dust being emitted due to physical and turbulent effects of vehicles. It is not thought, at this stage, that any unpaved road surfaces will be utilised during construction. The main entrance to the site will be via Charlwood Road.

5.10 As well as the type of road surface, the number of daily heavy duty vehicles (HDVs) accessing the site is used to determine dust emission magnitude during construction: <10 Small; 10-50 Medium; and >50 Large. The number of HDVs accessing the site is expected to be <10, falling into the 'Small' IAQM category. Overall the dust emission magnitude for the trackout phase is considered to be *Small*.

Emission Magnitude Summary

5.11 A summary of the dust emission magnitude as a result of the activities of Demolition, Earthworks, Construction and Trackout as specified in the IAQM guidance, and discussed above, are listed in Table 5.1 below. Overall, the dust emission magnitude is considered to be *Medium.*

Table 5.1: Dust Emission Magnitude for the construction activities, based on the IAQM's guidance

Activity	Dust Emission Magnitude
Demolition	Small
Earthworks	Medium
Construction	Small
Trackout	Small

Sensitivity of the Area

5.12 Having established the emission magnitude for dust above, the sensitivity of the area must be considered to establish the significance of effects. The effect of dust emissions depends on the sensitivity of each receptor. High sensitivity human receptors include residential dwellings, schools and hospitals. The impacts of dust emissions from the sources discussed above have the potential to cause an annoyance to human receptors living in the local area. Within distances of 20m of the site boundary there is a high risk of dust impacts, regardless of the prevailing wind direction. Up to 100m from the construction site, there may still be a high risk, particularly if the receptor is downwind of the dust source.

5.13 With the exponential decline in dust with distance from dust generating activities, it is considered that for receptors more than 350m from the site boundary, the risk is negligible. Furthermore, the risks at over 100m only have the potential to be significant in certain weather conditions, e.g. downwind of the source during dry periods.

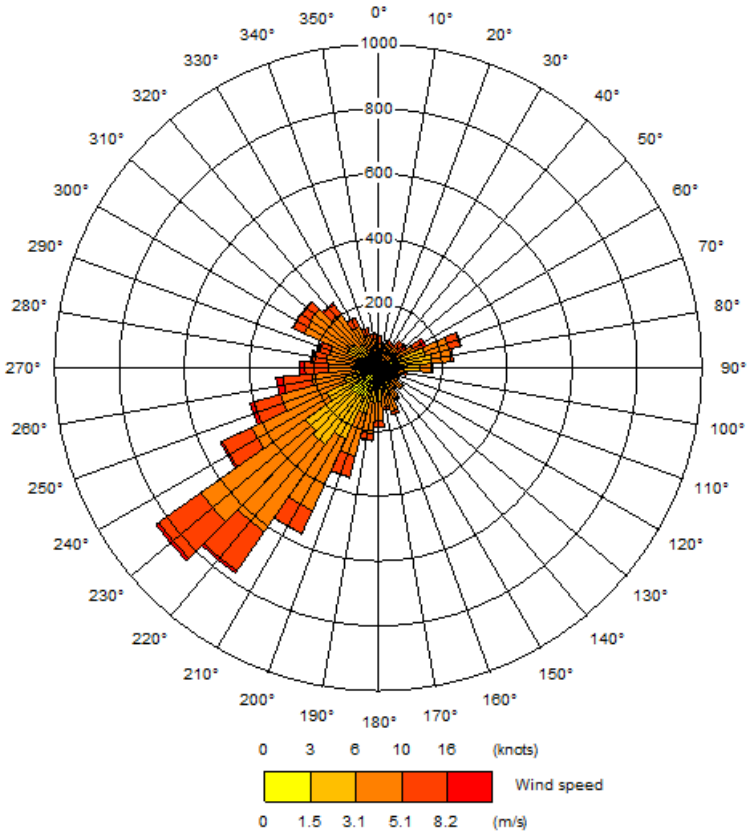
5.14 The approximate number of high sensitivity human receptors in the vicinity of the application site is detailed in Table 5.2 below and shown in Figure 2.

5.15 There are also a couple of industrial units and stables at Kilmarnock Farm, located within 20 m to the north of the Site. Places of work are considered to be of medium sensitivity to dust soiling effects.

Table 5.2: Approximate number of High Sensitivity Human Receptors close to the application site

Distance to site (m)	Approximate number of receptors	Receptor Details
<20	4	3 mobile homes (although planning permission will be sought to re-site 2 of them) and Kilmarnock Farmhouse
20-100	0	
100-350	Approx. 56	Little Foxes, Fox Hollow Cottage, Ilford Court Lodge, Iford Court Bungalow, Moat Barn and Iford Day Centre for Learning Difficulties

Plate 5.1: Wind Rose for Gatwick (2017)



5.16 Plate 5.1 shows that the prevailing wind is from the south-west. As shown in Figure 2, there are no residential dwellings to the north-east (downwind) of the application site. The sensitivity of the area to dust soiling impacts is defined as *Medium.*

Risk of Impacts

5.17 Having established the likely dust emission magnitudes and sensitivity of the area, the risk of impacts can be determined in accordance with the IAQM guidance. These are summarised in Table 5.3.

Table 5.3: Summary of Impact Risk by Construction Stage based on the IAQM's dust guidance

Stage	Impact Risk		
	Nuisance Dust	Ecology	PM_{10}
Demolition	Low	Negligible	Negligible
Earthworks	Medium	Negligible	Low
Construction	Low	Negligible	Negligible
Trackout	Negligible	Negligible	Negligible

5.18 Overall, the development is considered to be *Medium Risk* for nuisance dust soiling effects, *Low Risk* for PM_{10} health effects and to be *Negligible* for ecology, in the absence of mitigation.

Site Specific Mitigation

5.19 The IAQM lists recommended mitigation measures for low, medium and high Dust Impact Risks. The highly recommended mitigation measures for Medium Risk sites are included in Appendix B of this report. This will form the Construction Phase Mitigation Plan (CPMP).

5.20 Where dust generation cannot be avoided in areas close to neighbouring properties, additional mitigation measures should be put in place, such as: windbreaks, sprinklers, and/or time/weather condition limits on the operation of some items of plant or the carrying out of activities that are likely to generate a particularly significant amount of dust.

Residual Effects

5.21 After the implementation of the CPMP, the significance of each phase of the construction programme will be reduced and the residual significance of impacts for the construction phase is expected to be *Negligible*.

6. Operational Phase Impacts

6.1 A summary of the proposed development is provided in Section 1 of this report. The application site covers an area of approximately 4,500m^2, therefore the Site is considered to be Medium following the IAQM guidance. However, there are a number of sensitive receptors within 20m of the site boundary. It is therefore considered necessary to assess the risks of dust effects occurring during the operational phase. Demolition of the Dutch Barn and Stables has already been considered in the construction phase assessment (Section 5). The soil recycling and concrete crushing facility will not involve demolition of existing buildings so impacts on sensitive receptors in relation to operational demolition activities have not been considered any further within the assessment.

6.2 There is the potential for impacts on local air quality as a result of delivery, storage, processing and movement of aggregate. The main air quality impacts that may arise during these activities are dust deposition resulting in the soiling of surfaces e.g. cars, window sills: visible dust plumes and elevated PM_{10} concentrations as a result of dust generating activities on the Site. These dust emissions can give rise to annoyance at nearby receptors due to the soiling of surfaces of dust.

6.3 In assessing dust impacts, the distance from the source to the receptor is crucial, as large dust particles tend to settle out close to the emissions source. Smaller particles remain airborne for longer, dispersing widely and depositing more slowly over a wider area. Research indicates that particles (greater than 30 µm), responsible for most dust annoyance, will largely deposit within 100 m of sources. Intermediate particles (10-30 µm) can travel 200-300 m. Consequently, significant dust annoyance is usually limited to within a few hundred meters of its source. Smaller particles (<10 µm) are deposited slowly and may travel up to 1 km, however, the impact on the short term concentrations of PM_{10} occurs over a shorter distance. This is due to the rapid decrease in concentrations with distance from the source due to dispersion.

6.4 Dust deposition has the potential to affect sensitive habitats and plant communities and as discussed in section 4.4, there are no ecological receptors within 50m of the Site boundary. Therefore, impacts on ecologically sensitive receptors have not been considered any further within the assessment.

6.5 As discussed in section 4.5, annual mean PM_{10} concentrations in the vicinity of the Site are expected to be less than 75% of the objective limit of 40 µg/m^3.

6.6 A windrose from the Gatwick Meteorological Station for 2017 is provided in section 5.15, which shows that the prevailing wind is from the southwest. Receptors to the northeast are therefore most at risk of experiencing impacts during operation of the facility. Land-uses to the northeast are predominantly open fields which have a low sensitivity to dust impacts.

The risk assessment of operational impacts is set out below. Dust Emission Magnitude

Earthworks

6.7 Earthworks are those activities involved in preparing the Site for construction such as excavation of material, tipping, stockpiling and levelling. Although the site is not a construction site, material will be moved around the site, tipped, stockpiled, sorted and crushed. The total site has an area of approximately 4,500m^2, there will be between 5-10 earth moving vehicles at any one time and approximately 75,000 tonnes of material processed each year.

6.8 Given the amount o9f material that will be process annually and the number of heavy duty vehicles operating on site, the overall dust emission magnitude for the earthworks stage is considered to be *Medium.*

Construction

6.9 During operation of the site, no construction activities will be carried out therefore operational impacts have not been assessed against these criteria.

Trackout

6.10 With regard's effects from trackout there would be approximately 30 HDV generated per day, therefore the site would have a dust emission magnitude of *Medium*.

Emission Magnitude Summary

6.11 A summary of the dust emission magnitude as a result of the operational activities with reference to those set out within the IAQM guidance, and discussed above, are listed in Table 6.1 below. Overall, the dust emission magnitude is considered to be *Medium.*

Table 6.1: Dust Emission Magnitude for the operational activities, based on the IAQM's guidance

Activity	Dust Emission Magnitude
Demolition	N/A
Earthworks	Medium
Construction	N/A
Trackout	Medium

Sensitivity of the Area

6.12 Having established the emission magnitude for dust above, the sensitivity of the area must be considered to establish the significance of effects. The effect of dust emissions depends on the sensitivity of each receptor. As discussed previously, high sensitivity human receptors include residential dwellings, schools and hospitals.

6.13 The approximate number of high sensitivity human receptors in the vicinity of the application site is detailed in Table 6.2 below and shown in Figure 2.

6.14 There are also a couple of industrial units and stables at Kilmarnock Farm, located within 20 m to the north of the Site. Places of work are considered to be of medium sensitivity to dust soiling effects.

Table 6.2: Approximate number of High Sensitivity Human Receptors close to the application site

Distance to site (m)	Approximate number of receptors	Receptor Details
<20	4	3 mobile homes (although planning permission will be sought to re-site 2 of them) and Kilmarnock Farmhouse
20-100	0	
100-350	Approx. 56	Little Foxes, Fox Hollow Cottage, Ilford Court Lodge, Iford Court Bungalow, Moat Barn and Iford Day Centre for Learning Difficulties

Sensitivity of the Area Summary

6.15 Overall, the sensitivity of the surrounding area in relation to dust soiling effects is considered to be *Medium*.

Risk of Impacts

6.16 Having established the likely dust emission magnitudes and sensitivity of the area, the risk of impacts can be determined in accordance with the IAQM guidance. These are summarised in Table 6.3.

Table 6.3: Summary of Impact Risk by Operational Stage based on the IAQM's dust guidance

Stage	Impact Risk		
	Nuisance Dust	Ecology	PM_{10}
Demolition	N/A	N/A	N/A
Earthworks	Medium	N/A	Low
Construction	N/A	N/A	N/A
Trackout	Low	N/A	Low

6.17 Overall, the development is considered to be *Medium Risk* for nuisance dust soiling effects and *Low Risk* for PM_{10} health effects, in the absence of mitigation.

Site Specific Mitigation

6.18 The best practice measures that will be implemented at the site to minimise emissions during operation are detailed in Section 7.

7. Operation Phase Mitigation Plan (OPMP)

Operation Phase Mitigation

7.1 The following section outlines the best practice measures that will be implemented at the site to minimise emissions during operation. The Operation Phase Mitigation Plan (OPMP) should be considered as a live document and will be updated on a regular basis to ensure mitigation is kept relevant to site operations.

Communications

- The name and contact details of person (s) accountable for air quality and dust issues will be displayed on the site boundary. This will be the site manager;
- The head or regional office contact information will also be displayed.

Site Management

- All dust and air quality complaints will be recorded, the cause(s) identified and appropriate measures taken to reduce emissions in a timely manner. The measures taken will be recorded;
- The complaints log will be made available to HDC when asked;
- Any exceptional incidents that cause dust and/or air emissions, either on- or off site and the action taken to resolve the situation will be recorded in the log book.

Monitoring

- Regular site inspections will be carried out monitor compliance with this OPMP and inspection results recorded. The inspection log will be made available to the HDC when asked;
- The frequency of site inspections, by the person accountable for air quality and dust issues on site, will be increased when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.

Preparing and Maintaining the Site

- The layout of the site will be planned to locate dust raising activities away from sensitive receptors, where possible;
- Solid fencing will be erected along the Site boundary that are at least as high as any stockpiles;
- Site run-off of water or mud will be avoided;
- All site fencing and barriers will be kept clean using wet methods;
- All stored material will be kept damp to reduce the risk of dust emissions.

Operating Vehicle/Machinery and Sustainable Travel

- All vehicles will be timetabled to arrive on site at specific time slots. If a delivery has not been booked in, the vehicle will not be permitted to make the delivery and will be sent away;
- All deliveries will take place on site. There will be no waiting on the public highway;
- All vehicle engines will be switched off when stationary;
- A construction logistics plan will be developed to manage the sustainable delivery of materials to the Site.

Operations

- A logistics operative will ensure that all areas that have the potential to create dust are watered down frequently using water sprayers;
- The crusher machine will be used in conjunction with suitable dust suppressions techniques such as water sprays or local extraction;
- An adequate water supply will be available on site for effective dust/particulate matter suppression/mitigation;
- Drop heights from conveyors, loading shovels, delivery trucks and other loading or handling equipment will be minimised and use fine water sprays will be used where appropriate;
- The movement of material will be avoided in windy conditions;
- Wheel washers will be set up at the site exit to ensure no dust particles/soil deposits are transferred onto the public highway;
- All HGV will have a mechanical cover in place when tipping material onto the rubble pile.

Waste Management

- All waste will be disposed of frequently to ensure it does not create a dust hazard;

- No burning of any material will be permitted on site.

Measures Specific to Trackout

- Water assisted dust sweepers will be used on a regular basis on the access and local roads to remove any material tracked out of the Site;
- There will be no dry sweeping across the Site;
- All vehicles entering and leaving the Site will be covered to prevent the escape of materials during transport

Mitigation Required Under Planning Advice Document

7.2 As mentioned previously HDC uses its own guidance Planning Advice Document: Air Quality and Emissions Reduction Guidance to secure air quality mitigation from new developments. This is to help mitigate the impacts of cumulative development.

7.3 Following the guidance, the proposed development falls within the Medium category of development which would require Type 1 and Type 2 mitigation (see Appendix A).

7.4 The proposed development is a commercial/industrial facility therefore the appropriate mitigation should be provided relevant to the scale and types of activities associated to the facility.

Mitigation recommendations

7.5 The facility is a soil recycling and concrete crushing facility which will have predominantly HDV using the site to transfer and remove materials. It is not a public commercial facility with private cars or LGVs using the site.

7.6 The most relevant mitigation applicable for this type of facility is the management of HDV activities accessing and operating within the site under the OPMP complimented by appropriate mitigation measures suggested in the HDC Planning Advice Document

Type 1 mitigation:

7.7 The applicant can ensure that 10% of parking spaces have an electric charging point as detailed in Appendix 3 of the HDC guidance.

Type 2 mitigation:

7.8 Type 2 mitigation measures can include:

- Travel Plan setting out measures for discouraging high emission vehicle use and encouraging the uptake of low emissions fuels and technologies;
- Fleet operations should provide a strategy for considering and reducing emissions, including possibilities for the take up of low emissions fuels and technologies;

8. Discussion

8.1 HDC has declared two AQMAs within the district due to exceedances of the long term AQS for NO_2. The Site does not fall within an AQMA.

8.2 Pollution concentrations adjacent to the District's busiest roads can be high; however, data from the UK-AIR suggest that background concentrations in the vicinity of the application site are well below the key AQSs for NO_2 and PM_{10}.

8.3 An air quality assessment was required to consider the impact of the soil recycling and concrete crushing facility on local air quality and to identify the risk of dust impacts at nearby sensitive receptors.

8.4 The demolition of the existing buildings and construction of the proposed development could give rise to emissions that may cause some dust soiling effects on adjacent uses. However, by adopting appropriate mitigation measures (to be set out within a Construction Phase Mitigation Plan (CPMP) to reduce emissions and their potential impact, there should be no significant residual effects.

8.5 An Operation Phase Mitigation Plan (OPMP) has been prepared for the operational phase of the soil recycling and concrete crushing facility. Through implementation of the measures within this OPMP, it is considered that dust impacts during operation will be effectively mitigated to ensure off site impacts are negligible.

9. Conclusions

9.1 WS Planning & Architecture appointed Phlorum Ltd to undertake an air quality assessment for the proposed soil recycling and concrete crushing facility at Kilmarnock Farm, Charlwood. The scope of the assessment was discussed and agreed with Anna Czerska, Environmental Protection Officer at HDC, at the outset of the project.

9.2 UK-AIR background concentrations across the application site are likely to be below the relevant UK Air Quality Strategy Standard concentrations.

9.3 The proposed development is expected to have a medium risk of impacts at adjacent receptors during the operational phase of the proposed development. Appropriate mitigation measures have been identified and are set out within an Operation Phase Mitigation Plan. Following implementation of the recommended mitigation measures, the significance of residual impacts during the operational phase of the proposed development will be negligible.

9.4 During construction, adopting appropriate mitigation measures, as set out in the Construction Phase Mitigation Plan, should prevent any significant air quality effects on the surrounding area.

9.5 The proposed development is expected to comply with all relevant air quality policy. Air quality should not, therefore, pose any significant obstacles to the planning process.

Figures and Appendices

Figure 1: Site Location Plan

Figure 1: Site Location Plan

Contains Ordnance Survey data © Crown copyright and database right 2018

8138: Kilmarnock Farm
07/12/2018
www.phorum.com

Figure 2: Construction Phase Receptors

Figure 2: Construction Phase Receptors

Contains Ordnance Survey data © Crown copyright and database right 2018

8138: Kilmarnock Farm
07/12/2018
www.phorum.com

Appendices

Appendix A : Horsham District Council Planning Advice Document: Air Quality & Emissions Reduction Guidance

Appendix A: HDC Planning Advice Document: Air Quality & Emissions Reduction Guidance

The HDC planning advice document sets out the process by which air quality should be considered within the planning application process. There are three main stages to the process:

- Stage 1 – determining the development type classification of the proposal;
- Stage 2 – assessing and quantifying the impact on local air quality;
- Stage 3 – determining the level of mitigation required by the proposal to make the scheme sustainable in air quality terms

Stage 1- Site classification

The proposed development is classified into one of three categories which are summarised below.

Development Category	Minor	Medium	Major
	< 10 residential units < 1000m^2 commercial, industrial, retail floor space	> 10 residential units > 1000m^2 commercial, industrial, retail floor space	Minor or Medium size developments which trigger any of the following additional criteria: i)where the development requires an Environmental Impact Assessment ii) where development is likely to increase traffic flows by more than 5% on roads with >10,000 AADR or change average vehicle speeds by>10kph or likely to cause increased congestion; iii) where a development requires a transport assessment and/or HGV movements =/> 10% of total trips: iv) Where development is within or in relevant proximity to an AQMA.
Assessment	None (other than for exposure)	None (other than for exposure)	Air Quality Assessment required including an evaluation of changes in vehicle related emissions
Mitigation	Type 1	Type 1 and 2 (Mitigation could be included in Travel Plan(	Type 1,2 1nd 3 (mitigation could be included in Travel Plan)

Stage 2 – Air Quality Assessment.

Detailed guidance on how to carry out an air quality assessment is provided within the HDC planning document along with how to undertake the emissions assessment (if required) and the emissions calculator. The purpose of the Stage 2 assessment is to quantify the air quality impacts of a development and to determine the appropriate level of mitigation required to minimise the potential effects of the development upon health and/or the local environment.

Type 1 Mitigation

An electric vehicle recharging provision rate is expected in addition to mitigation arising from an exposure assessment. To prepare for increased demand in future years, appropriate cable provision should be included in the scheme design and development, in agreement with the local authority and include the standard mitigation listed below.

Type 1 Mitigation			
	Residential	**Commercial/Retail**	**Industrial**
	1 charging point per unit (house with dedicated parking) I charging point per 10 spaces (unallocated parking)	10% of parking spaces (this may be phased with 5%provision initially and a further 5% trigger)	10% of parking spaces (this may be phased with 5% provision initially and a further 5% trigger)
To prepare for increased demand in future years, appropriate cable provision should be included in scheme design and development in agreement with the local authority.			

Type 2 Mitigation

For medium and major development categories, Type 1 and Type 2 mitigation should be incorporated into scheme design as standard. A list of Type 2 mitigation measures is provided below. It is not an exhaustive list and should be adapted for particular locations and needs identified by the relevant officer.

Type 2 Mitigation	
Mitigation Options	Travel Plan (where required), including mechanisms for discouraging high emission vehicle use and encouraging the uptake of low emissions fuels and technologies Designation of parking spaces for low emission vehicles

Type 2 Mitigation	
	Differential parking charges depending on vehicle emissions All commercial vehicles should comply with current European Emission Standards from scheme opening, to be progressively maintained for the lifetime of the development Fleet operations should provide a strategy for considering and reducing emissions, including possibilities for the take up of low emissions fuels and technologies Use of ultra low emission service vehicles.

Type 3 Mitigation

Mitigation types 1, 2 and 3 are required for major developments to ensure that all appropriate on-site mitigation options are employed and that any residual impacts effectively offset using a damage cost calculation. Additional off-site mitigation/or compensation will be required, where on-site mitigation options are not sufficient to adequately mitigate the air quality impacts of the development. A list of additional Type 3 mitigation measures are provided below.

Type 3 Mitigation –additional mitigation and/or compensation required for scheme acceptability	
Mitigation/ Compensation Options	On street/public EV recharging including rapid charge systems Contribution to low emission vehicle re-fuelling infrastructure Car club provision or support to local car club/electric vehicle car club Low emission bus/mini-bus service provision Low emission waste collection services Bike/e-bike hire schemes Support local walking and cycling initiatives Contribution to renewable fuel and energy generation projects Incentives for the take-up of low emission vehicle technologies and fuels Contribution to local Ai Quality Action Plan initiatives.

Appendix B: IAQM Highly Recommended Mitigation Measures for sites with a Medium Risk of Dust Impacts

Appendix B: IAQM Highly Recommended Mitigation Measures for sites with a Medium Risk of Dust Impacts

Please refer to the IAQM's Construction Dust Guidance for further, "desirable", mitigation measures.

Communications

- Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
- Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
- Display the head or regional office contact information.
- Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this Appendix. The DMP may include monitoring of dust deposition, dust flux, real-time PM_{10} continuous monitoring and/or visual inspections.

Site Management

- Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
- Make the complaints log available to the local authority when asked.
- Record any exception incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the log book.

Monitoring

- Carry out regular site inspections to monitor compliance with the Dust Management Plan, record inspection results, and make an inspection log available to the local authority when asked.
- Increase the frequency of inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
- Agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it is a large site, before work on a phase commences. Further guidance is provided by the IAQM[11] on *monitoring during demolition, earthworks and construction*.

Preparing and Maintaining the Site

[11] IAQM. (2012). *Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites.* http://www.iaqm.co.uk/text/guidance/monitoring_construction_sites_2012.pdf

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as possible.
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.
- Avoid site runoff of water or mud.
- Keep site fencing, barriers and scaffolding clean using wet methods.
- Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on site cover as described below.
- Cover, seed or fence stockpiles to prevent wind whipping.

Operating Vehicle/Machinery and Sustainable Travel

- Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable.
- Ensure all vehicles switch off engines when stationary – no idling vehicles.
- Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.

Operations

- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on equipment wherever appropriate.
- Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods.

Waste Management

- Avoid bonfires and burning of waste materials.

Demolition

- Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
- Avoid explosive blasting, using appropriate manual or mechanical alternatives.
- Bag and remove any biological debris or damp down such material before demolition.

Earthworks

Construction

- Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.

Trackout

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
- Avoid dry sweeping of large areas.
- Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
- Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.
- Record all inspections of haul routes and any subsequent action in a site log book.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior leaving the site where reasonably practicable).
- Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Access gates to be located at least 10m from receptors where possible.

Phlorum Limited

Head Office & Registered Office:
Unit 12
Hunns Mere Way
Woodingdean
Brighton
East Sussex
BN2 6AH
T: 01273 307 167

Northern Office:
Ground Floor
Adamson House
Towers Business Park
Wilmslow Road
Didsbury
Manchester
M20 2YY
T: 0161 955 4250

Western Office:
One Caspian Point
Pierhead Street
Cardiff Bay
Cardiff
CF10 4DQ
T: 029 2092 0820

info@phlorum.com
www.phlorum.com

Registered in England & Wales. Reg No. 4967256