Technical Note	
Hamble Lane, Hampshire	
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1 Introduction

1.1.1 This technical note has been prepared in response to a request for further information by Hampshire County Council under Regulation 25 of The Town and Country Planning (Environmental Impact Assessment) Regulations 2017.

1.1.2 The request for further information relates to the planning application for the proposed extraction of sand and gravel, with restoration to grazing land and recreation using imported inert restoration materials, the erection of associated plant and infrastructure and the creation of a new footpath and access onto Hamble Lane at Hamble Airfield (Application No. CS/22/92277). With regard to dust and air quality, the Regulation 25 request states:

"It is noted that sand and gravel is largely wet when extracted and dust issues from such operations are rare, although temporary soil moving operations can generate dust emissions that leave a site's boundary depending on local weather conditions and working methods. The EHO has assessed the proposal and notes that the quantity of dust and particulate matter that will be received by residents and dwellings has not been quantitatively predicted/modelled. The EHO requests that quantitative dust and particulate modelling is undertaken to better inform decision making and any scheme of mitigation and future monitoring that may be necessary to ensure that there are no significant impacts on the local community and environment. Your attention is drawn to the specific consultation response of the EHO."

1.1.3 Hampshire County Council have requested further information based on comments made on the planning application by Neil Scott, the Senior Pollution Control Officer at Eastleigh Borough Council.

1.1.4 This technical note also addresses concerns raised by Hamble Parish Council and Hound Parish Council.

2 Eastleigh Borough Council

2.1. Introduction

2.1.1 With regard to air quality and dust, Eastleigh Borough Council have asked for clarification of the following technical matters.

2.2. Question 1

Regarding the impact of vehicular emissions, can the EIA check the transport model is valid with the Local Planning Authority?

2.2.1 This would need to be addressed by i-Transport, the Transport Consultants for the scheme. Recent traffic counts undertaken by i-Transport indicate that the estimated baseline traffic flows used for the Air Quality Assessment are higher than those measured in 2022; therefore, the Air Quality Assessment is conservative.

2.3. Question 2

Given the significant increase in HGV movements in the vicinity and through the Hamble Lane AQMA, modelling of air pollution needs to consider the impact of increased traffic flows in as much detail as possible, demonstrating that short term and long term impacts caused by HGVs. Where mitigations are required these should be modelled to confirm their effectiveness.

2.3.1 The air quality impact on receptors adjacent to roads affected by the proposed development and within the Hamble Lane AQMA has been assessed using an air quality dispersion model and the impacts have been found to be negligible. The assessment takes account of the total pollutant concentration at each receptor with the proposed development in operation and the change in concentration due to the proposed development. As the air quality impact is negligible at all receptors, the impact on local receptors and the AQMA due to HGV emissions is deemed to be not significant.

2.4. Question 3

For works lasting up to and beyond a decade in proximity to dwellings, can the applicant undertake quantifiable dust modelling to aid description of the impact to EIA readers and dwelling holders?

2.4.1 The dust assessment was undertaken following the recommended methodology in Institute of Air Quality Management[1] Guidance on the Assessment of Mineral Dust Impacts for Planning 2016 v1.1. With regard to using dispersion modelling to predict dust impacts from mineral working quantitatively, the IAQM guidance states:

"Detailed dispersion modelling of dust impacts from minerals sites in the UK is extremely rare and is not generally recommended by the IAQM given the lack of accurate UK emissions data for this sector."

2.4.2 The IAQM guidance goes on to state that:

[1] The IAQM is the professional body for air quality professionals https://iaqm.co.uk.

"The collective view of the IAQM Working Group is that it is currently inappropriate to use a quantitative modelling approach to predict the impact in most cases and a qualitative risk-based approach using the S-P-R concept should usually suffice. This is primarily due to a lack of UK derived emission factors for minerals sites that could be used for modelling."

2.4.3 It is clear that air quality professionals should not use dispersion modelling to predict impacts due to dust from mineral workings as the lack of useable emissions data would render the results meaningless, i.e., rubbish in = rubbish out. The IAQM recommend using a qualitative risk based approach using the source-pathway-receptor (S-P-R) concept, as has been undertaken in the Air Quality ES Chapter, with details of the assessment methodology provided in the Air Quality Appendices.

2.5. Question 4

Can the applicant examine the assumptions for noise modelling to conclude on effective mitigation measures to minimise residual impact?

2.5.1 Not relevant to air quality or dust.

2.6. Question 5

Using a quantitative model of the site and its activities, can the applicant also refine the EIA prediction using locally measured meteorological conditions which include wind speed and direction?

2.6.1 As it would not be appropriate to use dispersion modelling, a quantitative model cannot be used to predict dust impacts, see the answer to Question 3 above. Meteorological data appropriate for use in dispersion models is only available from specific locations in the UK, with the closest location to the application site being Southampton Airport.

2.7. Question 6

Can the EIA quantitatively predict dust levels for different stages or seasons going into the future ten years or so?

2.7.1 As it would not be appropriate to use dispersion modelling, a quantitative model cannot be used to predict dust impacts, see the answer to Question 3 above.

2.8. Question 7

Can the EIA quantitively predict and assess 'what if' scenarios on supply and demand for sand and waste to infill?

2.8.1 Not relevant to air quality or dust.

2.9. Question 8

Can the EIA use worst case assumptions on modelling accuracy?

2.9.1 As it would not be appropriate to use dispersion modelling, a quantitative model cannot be used to predict dust impacts, see the answer to Question 3 above.

2.10. Question 9

Can the EIA explain what the impact of dust and particulate matter is using a health risk based assessment technique?

2.10.1 The potential health impacts due to the PM_{10} fraction of dust emissions has been considered in the Dust Deposition Health Effects section of the Air Quality ES Chapter.

2.11. Question 10

Can the EIA explain what threshold of impact or conditions that influence dust will trigger action to prevent increases in dust and particulates? For example, seasonal variation in weather, heat waves, windstorms, lower moisture content in sand at the excavation face, moisture content and particulate size of waste material being infilled, availability of surface water or lagoon for dust suppression during drought, seasonal variability in water table etc ?

2.11.1 Trigger levels will be set out in the Dust Management Plan (DMP) for the scheme. The DMP will be a working document that sets out the management and control procedures that will be put in place at the site to manage dust. The DMP will aim to ensure that dust assessment forms part of daily inspections, and that dust is primarily controlled by good operational practices, with appropriate measures undertaken to prevent dust beyond the site boundary. The DMP will include the following:

- A general description of the site, it's location and the on-site operations;
- A description of the likely dust sources, pathways and receptors;
- The control procedures used to manage dust at the site on a daily basis;
- The roles and responsibilities of site personnel;
- Trigger levels and risk factors and the corrective actions to be taken during abnormal conditions;
- The monitoring and auditing of the effectiveness of the control procedures; and
- Details of responsibilities regarding record keeping, and the implementation and maintenance of the DMP.

2.12. Question 11

Will the EIA embed all best practicable means of preventing fugitive dust including using enclosed conveyor system and hoppers? Can stockpiles for example be kept in a three-side enclosure with optional sheeting for when needed ?

2.12.1 Best practicable means will be used to prevent dust emissions, with consideration to the level of risk associated with the dust emissions source. Stockpiles will all be located more than 100m from any dust sensitive receptors and would not need to be enclosed. Any conveyors passing within 100m of dust sensitive receptors will be enclosed.

2.13. Question 12

Can the EIA explain the site EMS and environmental monitoring and audit for dust and particulates? Can this include weekly measurement and reporting? Can this set out clearly what remedial actions are needed if trigger limits to be agreed with the Local Planning Authority are exceeded?

2.13.1 This information will be set out in the DMP for the scheme, and it is expected that the requirement for a DMP will be conditioned if the scheme is approved.

2.14. Question 13

What will be the complaint response action time, for construction works where 24 hours is normal?

2.14.1 This information will be set out in the DMP for the scheme, and it is expected that the requirement for a DMP will be conditioned if the scheme is approved.

2.15. Question 14

Can the EIA demonstrate whether dwelling holders will experience dust on windowsills, indoors when windows are open, on cars and in the garden environs? For example, what would dust deposition look like on a surface at a dwelling near the works?

2.15.1 The qualitative dust risk assessment has determined that the magnitude of the dust effect at local receptors would be negligible and there would not be any significant effects on dust deposition.

3 Hamble Parish Council

3.1.1 Hamble Parish Council has provided a number of reasons for objection to the proposed development, including the following relating to air quality and dust.

3.1.2 The reason for objection relating to air quality states:

A formal Air Quality Management Area (AQMA) has been declared for the area of the Hamble Lane corridor between the Portsmouth Road junction and the Windhover Roundabout. Eastleigh Borough Council has already identified concerns regarding the assessment of air quality impacts and requested that further details be obtained from the applicant. The Parish Council notes that the application provides no details of the type or nature of the HGVs that Cemex will permit to access the site and thus no location specific controls (just bare legal requirements) on their emissions.

The local planning authority must be satisfied that there will be no further detriment to air quality as a result of the proposed development and the information submitted so far is clearly insufficient to provide any reassurance that this will be the case.

3.1.3 The Air Quality ES Chapter and Appendices set out full details of the methodology used to assess the impact due to road traffic emissions on receptors within the Hamble Lane AQMA. The impacts have been found to be negligible; therefore, the impact on the AQMA due to HGV emissions is deemed to be not significant.

3.1.4 The reason for objection relating to dust states:

Dust management is essential to minimise the possible impact on human health of dust particles arising from the extraction, processing and transportation of sand and gravel, as well less serious nuisance caused by dust blowing into roads and sensitive receptors. The Parish Council acknowledges that relatively simple dust management techniques may be capable of managing the on-going risk associated with dust but is not satisfied that this has yet been adequately assessed and any abnormal risks taken into account.

In particular we note that the 'wind rose' used to plot potential dust spread from the site is based on wind pattern evidence from Southampton Airport. Whilst this might be acceptable for some purposes where site conditions are unlikely to have their own impact, it is clearly not acceptable for a site as large as Hamble Airfield which has sufficient scale to produce unique local conditions.

3.1.5 The Air Quality ES Chapter and Appendices set out full details of the methodology used to assess the impact due to dust emissions during the operation of the proposed development. Dust mitigation designed into the scheme has been set out in the ES Chapter and includes the construction of 3-5m high screening bunds between onsite operations and local receptors. Following construction of these bunds, almost all local receptors would be more than 100m from the extraction area and dust generating activities. The IAQM Guidance on the Assessment of Mineral Dust Impacts for Planning 2016 v1.1 states:

"It is commonly accepted that the greatest impacts will be within 100 m of a source and this can include both large (>30 µm) and small dust particles. The greatest

potential for high rates of dust deposition and elevated PM_{10} concentrations occurs within this distance."

The presence of the screening bunds and the distance of dust sensitive receptors from potentially dust generating activities would minimise the risk of dust effects. With the other dust mitigation designed into the scheme, the dust risk assessment in the Air Quality ES Chapter has reached a conclusion that the magnitude of dust effects at receptors would be negligible and the impact is deemed to be not significant. A DMP will be prepared and agreed with the local planning authority for implementation at the proposed development.

3.1.6 The application site is located just 9km to the south-southeast of Southampton Airport and, although there would be some local variation, the data from Southampton Airport is likely to be very similar to the prevailing wind conditions at the application site.

4 Hound Parish Council

4.1.1 Hound Parish Council has provided the following comments with regards air quality and dust.

4.2. Comment 1

Eastleigh ranked 250 out of 317 local authorities for background concentrations of $PM_{2.5}$ in 2018 and 2019 with background levels of 10.6µg/m^3. These existing background levels are already deemed to be dangerous and in breach of WHO limits of average annual limit of 5 µg/m^3 (Taskforce for Lung Health). The current application by CEMEX has an objective of an annual mean $PM_{2.5}$ of 25µg/m^3, which is significantly higher than the WHO recommended limits.

4.2.1 The WHO has published air quality guidelines that are an evidence-informed tool for policy-makers to guide legislation and policies. The UK Government does not currently have plans to implement the WHO guidelines in UK legislation. In the UK outdoor air pollutants are regulated by the Air Quality (England) Regulations 2000 and the Air Quality (England) (Amendment) Regulations 2002 which set out Air Quality Objectives which must be achieved. The Air Quality ES Chapter assesses the impacts of the proposed development against these objectives.

4.3. Comment 2

There is likely to be a very high risk to local residents' health from airborne dust containing crystalline silica, which is known to lead to an increased risk of silicosis and lung cancer. Silicosis is deemed to usually develop after being exposed to silica for 10-20 years, although it can sometimes develop after 5-10 years of exposure. Occasionally, it can occur after only a few months of very heavy exposure. The main symptoms of silicosis are: a persistent cough, shortness of breath, weakness and tiredness, and can ultimately be fatal. Silicosis can increase the risk of developing other health conditions such as chest infections, heart failure, arthritis, kidney disease, Chronic Obstructive Pulmonary Disease (COPD) and lung cancer.

There are regulations and limits set for workplace exposure to dust containing crystalline silica. These limits are taken over an 8hr period. The "All Party Parliamentary Group for Respiratory Health - Silica - The next asbestos" noted that the "regulation is currently ineffective" regarding exposure limits and recommended halving the limits to exposure. But the majority of quarries which exist in the UK are not directly next to schools where the school children will potentially be exposed to these harmful contaminants on a daily basis with no Personal Protective Equipment over a 6 hour period, and residential properties where the residents will be exposed over the entire 24 hour period with no Personal Protective Equipment. She is extremely concerned about the long-term effect of having a gravel extraction plant immediately next door to the school and residential properties, which will put these people in particular but also the whole population on the entire peninsula at an unacceptably high risk to their health as small particulates are known to be blown and travel long distances.

The current plan from CEMEX proposes that they use water suppression only on prolonged dry weather and/or high winds, or if visible dust is generated. However, silica dust particles are invisible to the naked eye in normal light, so high concentrations can be inhaled without the worker being aware of it. Thus, if the proposed mitigations against air pollution from silica dust rely on workers being able to see the dust generated before using water suppression, they will be entirely ineffective in preventing and transmission of silica dust particles.

Relying on rainy weather will not help - It is known that there is an average of between 8 and 12 rainy days per month in Hamble, leaving between 221 and 269 dry days in the year when the local population will be at risk of inhaling crystalline silica dust, and so at long term risk of silicosis and lung cancer.

The "All Party Parliamentary Group for Respiratory Health - Silica - The next asbestos" noted that the "regulation is currently ineffective" regarding exposure limits. Respirable Crystalline Silica is noted in this document to be most toxic when it is freshly fractured, ie: when it has been freshly mined. It was noted that exposure to Respirable Crystalline Silica occurs beyond the task of drilling or cutting, and can remain airborne after the task, to be released later when disturbed from clothes or in leaks or spillages. The "All Party Parliamentary Group for Respiratory Health - Silica - The next asbestos" has recommended methods of designing out exposure to Respirable Crystalline Silica should be used to reduce risk - the best and most appropriate way of designing out exposure in this situation is to not have the gravel extraction plant directly next to schools and residential properties.

4.3.1 Silicosis is a lung disease caused by inhaling *large* amounts of crystalline silica dust due to occupational exposure. The Workplace Exposure Limit (WEL) for respirable silica dust is 0.1mg/m^3 averaged over 8 hours, which would equate to 100µg/m^3. This is significantly higher than the Air Quality Objectives for PM_{10}, as shown in the table below. Background annual mean PM_{10} concentrations across the study area range from 13.6-15.0µg/m^3, significantly lower than the objective. The potential health impacts due to the PM_{10} fraction of dust emissions, i.e., respirable dust, has been considered in the Dust Deposition Health Effects section of the Air Quality ES Chapter. The IAQM minerals guidance takes the approach that there is little risk that a process contribution from a dust source would lead to an exceedance of the objectives where background ambient PM_{10} concentrations are below 17µg/m^3; therefore, the proposed development will have an insignificant effect on health due to fugitive emissions of PM_{10}.

Table 12.1 The Objectives for PM_{10}

Pollutant	Concentration Measured As	Objective
PM_{10}	24-hour Mean	50 µg/m^3 not to be exceeded more than 35 times a year
	Annual Mean	40 µg/m^3