

Technical Note

Prepared by: **Dr Robert Storey** Date: **19 May 2022**
Project: **Proposed Quarry at Former Hamble Airfield Site** Ref: **5173**
For: **Emma Pearman at CEMEX** Page: **1 of 8**
Subject: **Response to Regulation 25 Letter**

Introduction

Following the receipt by CEMEX of a Regulation 25 letter dated 04 April 2022 from Hampshire County Council requesting further information to supplement the noise assessment for the proposed quarry at the former Hamble Airfield site, WBM has reviewed the letter and also the comments from the Environmental Health Officer at Eastleigh Borough Council and have the following comments:

Hampshire County Council Regulation 25 Letter

The Regulation 25 letter includes the following text relating to noise:

“The Environmental Health Officer (EHO) notes that background noise monitoring was undertaken in 2018, some four years ago and which may not be reflective of the current position. It is requested that a revised background noise monitoring exercise be undertaken to better reflect current noise levels within an updated NIA.”

WBM normally consider that unless there has been significant changes in the vicinity of a site that background noise levels measured within the last 4 years would still be valid. It is noted that at the time of the assessment, the data was just over 3 years old and at that time the country was under at least partial lockdown conditions resulting in any further baseline noise survey data collected being unrepresentative.

Nonetheless, whilst reserving and without prejudice to the applicant’s position on that subject, in the interests of progressing the application and as CEMEX are willing to commission the additional work, further baseline noise survey data will be acquired.

This additional baseline noise survey data will be used to update the noise assessment.

Eastleigh Borough Council Environmental Health Officer Comments

The comments from the Environmental Health Officer are more extensive and are considered in turn below:

“Para 7.1.2 and 7.1.3 Background Sound Levels

It is recognised that Covid affected everyday life in 2020 and 2021. Measurements of background sound levels were carried out in 2018 and used as baseline to compare with works noise.

We ask:

What are the observations on life in 2018 and 2022 that lead to the EIA concluding year 2018 is

representative of background sound levels ? “

At the time of preparation of the assessment (when the country was at least in partial lockdown affecting the representative nature of any baseline noise measurements), the data was less than 4 years old and at the start of lockdown, the majority of the data was less than 2 years old. The data should still be valid and is likely to represent a worst case as one would normally expect background noise levels to gradually rise as road traffic volumes increase, but this may have been slowed down due to the restrictions in the wake of the pandemic.

However, as stated above, now that restrictions are no longer in place, updated baseline noise survey data will be collected to supplement the assessment.

“Is it premature to submit the EIA for approval when opportunity now exists for background sound levels to be measured? “

As stated above, the assessment was prepared prior to the lifting of lockdown restrictions and at the time of writing, the timescale for the end of the restrictions could not be relied upon.

“Given the importance of the information the whole noise impact assessment depends upon to design the mitigation measures for the works, will it be premature to rely on this? “

It would not be premature if one considers that the presented baseline noise levels are representative.

“What mechanism is there to recompute EIA predictions and make new plans for mitigation now and during the development? “

Once the updated baseline noise has been acquired, the calculations can be updated and the assessment amended. WBM are not in a position to comment on the mechanism for the drafting of new plans including any amendments to mitigation (if required).

“Have the background sound levels been measured over sufficient duration to conclude on short and long-term sound level variation?”

The data was collected on three separate days covering a period of 4 months and with levels generally controlled by ever-present reasonably constant noise sources, such as road and rail traffic and local commercial activity and fairly consistent noise levels over the course of a change from winter to spring, the data should be sufficient to ascertain the representative background noise levels in the vicinity of the site. The data will now be supplemented by the updated survey work to be undertaken in 2022.

“Para 7.3.5, 7.4.9 and 7.4.10 Background Sound Levels

Attended sample measurements of one hour total duration were carried in around the middle of the day at six noise sensitive receiver locations on Monday 12 February 2018, Tuesday 24 April 2018 and Tuesday 15 May 2018.

We ask:

Are these few remeasurements representative of long-term background sound levels and why were long term measurements not undertaken as well ?”

In the experience of WBM and most others, measurements to establish background noise levels vary very little between measurements of 15 minute duration and those of one hour. The measurements taken on different days during different months were reasonably consistent so this is an indication that the measurements taken in 2018 were sufficient to establish representative background noise levels.

However, this data will be supplemented by the planned additional baseline noise surveys to be conducted in 2022.

Long term measurements were not undertaken as there was not a safe, secure location identified for the installation of a sound level meter on the site as it is all publicly accessible land. This is likely to remain the case for the updated noise survey work in 2022 unless access to a resident's property is secured.

“What is the variance in background sound level and character throughout an ordinary day at on a Saturday morning?”

This was not established in the original assessment as it was considered that the quietest part of the working week day was not likely to be subject to significantly higher background noise levels than a Saturday morning, when more residents may be at home and the nearby marina will be in more use.

“What is the ‘uncertainty’ of suggesting noise limits for several years of works based upon these limited data?”

The uncertainty is only whether the levels are representative. It is likely that as the work progresses over time that the underlying background noise levels will increase as road traffic flows and commercial activity increases with further development of the area. The suggestion of noise limits is based on the advice contained within the latest government guidance and as a few of the locations are at the upper limit for recommended site noise levels, this is unlikely to change. If the limits are based on a background noise levels that in all likelihood will increase, that is likely to provide a protection of amenity that will be more robust as time passes.

“How can it be concluded that from 0700 in the morning residents will be going to work as the EIA says they will less likely impacted by the works?”

This was mentioned in the assessment as it is established in this country that the period 07:00 to 09:00 hours (and the corresponding period in the afternoon when the school and work day finishes) are generally noisier in terms of background noise levels as this is when the rush hour starts. WS Atkins have stated that they would only accept background noise levels at a similar location during the period 10:00 to 14:00 hours as this represents the quietest part of the day and is therefore a worst case scenario with no rush hours movements.

“Does background traffic flow data support this for the road between the works and dwellings?”

When examined for the assessment, the road traffic flows on the local roads (prior to lockdown) were shown to be increased during the period 07:00 to 08:00 from that during the middle of the day.

“Para 7.6.2 Noise Bund Mitigation

Heavy reliance placed on the noise bund to reduce noise and comply with the limits the EIA uses.

We ask:

What are the benefits of different bund heights? "

Different bund heights are included to demonstrate compliance of the worst case scenario noise levels with different site noise limits for different receptors. The minimum height that shows compliance are used as the material is limited and needs to be available to be concentrated in the appropriate areas.

"Can residual noise impact be ameliorated ?"

The residual noise impact is likely to be significantly overestimated at most of the assessment locations due to presenting a worst case scenario that is not expected to occur in practice. Once the updated baseline noise data is available, the assessment will be updated and if additional mitigation measures are necessary, this will be investigated and recommended in the updated assessment.

"Can uncertainty in the EIA prediction be accommodated with ease ? "

Uncertainty is already incorporated in the assessment as the calculations include all the mobile plant operating for the entire assessment period of one hour at the highest point of working (top of the sand deposit) in the nearest location to each receptor assessed. This scenario is highly unlikely to occur in practice and provides a worst case to address the issue of uncertainty in the calculations. The sound power levels used for the plant items are based on short term measurements of similar plant working at full capacity and if the on times were adjusted to allow for when the mobile plant are not at full operational intensity, this would reduce the calculated site noise levels. The calculations also consider a set back distance from the bunds to allow for the plant items being out of the "shadow" of the bund to increase the robustness of the assessment.

"What if say noise barriers were erected on top of the maximum possible earth bund height ?"

This could be a possibility if required, or if the operator wishes to undertake this work anyway, this could be done, but the focus of the assessment is to present the mitigation that is needed to comply with the suggested site noise limits.

"Para 7.6.2 Distance Buffer to Properties

Noise reduces over distance and 'buffers' between works and dwellings allow for 'drop out' or deposition of dust.

We ask:

What are the benefits of different buffer distances between works and dwellings ?"

Such buffer distances can be to assist in mitigating noise levels with a view to protecting amenity at the specific dwelling. Some buffer distances were incorporated as part of the design of the noise and were not related to noise.

"Can residual noise impact be ameliorated ?"

This question has been answered above although not specifically relating to buffer distances. However, as at least some of these distances were not designed for noise purposes, the answer remains as above.

“Can uncertainty in the EIA prediction be reduced by increasing the buffer ?”

Again, as these distances were part of the design from the operator rather than specifically related to the noise impact, this is not an aspect that is covered in the noise assessment. As this is a fairly flat area, any increase in working distance would be expected to reduce the noise impact if the same bund is also relocated.

“Para 7.1.5 and 7.3.3 Noise Limits

The EIA derives noise limits from the national publication “Planning Practice Guidance for Minerals”. This was first published in 2014. The EIA says acceptable noise levels when they are not more than ten decibels above background sound levels at dwellings between 0700 and 1900. And notes the intention of the limits includes for “not imposing unreasonable burdens on the mineral operator” and “Care should be taken, however, to avoid any of these suggested values being implemented as fixed thresholds as specific circumstances may justify some variation being allowed”. This provides a benchmark, but it is somewhat simplistic.

This is because a pollution impact is more nuanced in the way it is perceived. Human exposure to elevated magnitudes of noise for a short time tend to be tolerated and can be less harmful than a lower magnitude over a longer term. This is recognised for example by tolerance to construction noise as it is temporary and a positive outcome from this is tangible, such as a road improvement. The Noise Policy Statement for England (2010) and National Planning Policy Framework (2021) encourage developers to “Mitigate and minimise adverse impacts on health and quality of life...” and “...where possible, alternative options which reduce or eliminate such impacts should be pursued”.

We therefore ask:

Can the applicant explore options of mitigation measures to minimise or eliminate noise (and dust) impacts?”

The assessment provides details of mitigation measures based on preliminary calculations to minimise the noise impact of working the site and this will be updated when the updated baseline noise data is available. It is also recommended that the plant items to be used on site are modern, well maintained equipment and it may be useful for a Noise Management Plan to be prepared following the granting of any planning permission.

“The use of plant and equipment on an open site is akin to construction works, such as building a road or preparing a large site for development. Ordinarily, construction works start at 0800 and end at 1800 weekdays and 0800 to 1300 Saturdays only.

We ask:

Why would the sand extraction, processing, loading of lorries and lorry movements and reception of lorries with waste and dumping into voids and plant and equipment handling this in situ be less of a disturbance and of lesser impact to dwelling holders than say construction works of a lesser duration ?

The extraction and processing of sand is noticeably quieter than that of mixed aggregate and is therefore generally controlled by plant/engine noise. The plant to be used on site is likely to be working less intensely

than on a short term construction site and this site will not include activities such as piling or drilling that may be required on a construction site. It is also worth noting that the upper limit for routine long term operations on the site will be 55 dB $L_{Aeq, 1 \text{ hour free field}}$, when if construction noise was to be considered under the ABC Method detailed in BS5228, the limit would be 65 dB $L_{Aeq, 1 \text{ hour free field}}$ during the daytime (07:00 to 1900 and 07:00 to 13:00 on Saturdays), 55 dB $L_{Aeq, 1 \text{ hour free field}}$ during the evening (19:00 to 23:00) and weekends excluding Saturday mornings and 45 dB $L_{Aeq, 1 \text{ hour free field}}$ during the night (23:00 to 07:00).

“Para 7.6.5 Calculation Methods

Calculations assumed 100% operation of plant in each hour of operation and co-tipping into the extract void at 20%.

We ask:

What if hourly tipping activity peaks at 100% ?“

It is not possible to have tipping of material that will generally take place for a few seconds occurring for 100% of an hour. 20% may be an overestimate

“The EIA uses Sound Power Levels for plant and equipment from “manufacturers data and typical measurements of such plant items on other sites”.

We ask:

What if plant used is noisier than has been assumed for the EIA predication?”

This is unlikely to be the case as the sound power levels are based on short term intense activity of the equipment working at full capacity. However, if this was shown to be the case, the operator would act to address the issue.

“How will emissions from the plant items themselves be verified ?”

This could be confirmed through site noise monitoring once the site is active, which initially could include plant measurements of the specific items.

“How will maintenance be carried out to alleviate noise emission increase from wear and tear?”

This is a point to be addressed by the operator not the noise consultant and could be detailed in any Site Management Plan.

“How much can the operator influence the noise from machines ?”

As above, but this could be addressed with training or use of experienced operator and implementation of a Site Management Plan.

“What if demand leads to more lorries onsite and using the road?”

This is not part of the noise assessment, but there is scope to increase the internal HGV movements within the site. A significant increase would be necessary to cause a substantial increase.

“What is the contingency for peak periods ? Is sand delivery to customers even and consistent throughout the day?”

Again, this is a question for the operator and not the noise consultant.

“What if the customers need more sand in the early part of the day ?“

Again, this is a question for the operator, but the process will be the same and it is therefore just likely that the operation in the processing plant area will be closer to the 100% on time scenario considered in the calculations.

“Are there other sand quarries to refer to on the typical operating pattern?”

Again, this is a question for the operator, but is irrelevant in terms of the conclusions of the noise assessment.

“Table 7.8 Calculated Site Noise Level (Routine Operations)

Hourly average noise levels are predicted and compared to a suggested hourly noise limit. The limit is ten decibels higher than the background sound levels measured around lunchtime. The EIA predicts compliance by one decibel.

We ask:

What if all the uncertainties described above are taken into consideration ?”

As stated previously, the site noise calculations include for uncertainty by presenting a worst case scenario that will in all likelihood never occur including plant items operating all in the same area at the highest level of the mineral deposit at the nearest point to each receiver location. This point has been addressed earlier.

“What is the hourly experience of dwelling holders and compliances or non-compliances throughout the working day and on a Saturday morning ?“

This is a question for the dwelling holders once a site is operational. It is not reasonable to expect the operator to answer this question now.

“Would complex modelling of site emissions, phases and monthly time intervals help to describe the longer-term noise levels experienced by dwelling holders. For example, to use computer aided software commonly used by planning applicants for commercial and industrial premises”

Such modelling would put a considerable financial burden on the operator and make the assessment far more impenetrable for the layman. A presentation of a worst case scenario as in the assessment should be sufficient to indicate the noise impact of the proposals. In practice, computer modelling will include far more attenuation and in WBM's experience would present lower calculated site noise levels than those presented.

“Can such modelling help to test ‘what ifs’ for reducing uncertainty and improving mitigation measures for robustness of the EIA prediction of compliance with noise limits ?“

Due to the simplistic nature of the proposals, such modelling would not be necessary and WBM would still advise erring on the side of caution with regard to recommended mitigation measures.

“Besides average noise what instantaneous higher-level noise will be heard by dwelling holders and how will this be controlled ? Common instantaneous noise problems occur from dropping or tipping plant buckets, shaking plant tools or disengaging load, dropping materials and waste etc.”

There will always be occasional instances of instantaneous higher noise levels on any site or road or premises. Minimising such instances is best achieved by the use of a Site Management Plan and Noise Management Plan with the problem addressed by means of best practice.

“What is the character of the noise? What will it sound like ? Will the character be disturbing or annoying compared to background sounds such as conversation and natural sounds ?”

As stated in the assessment, at a distance, noise from machinery used at mineral workings does not usually contain a distinguishable tone nor does it tend to be impulsive. The site noise will generally be engine noise and not dissimilar to slow HGV movements on local roads. As conversation and natural sounds such as birdsong would be expected to be at least 5 to 10 dB(A) louder than the upper site noise limit, the site noise would not be expected to be disturbing or annoying.

“Can use of audible movement beepers be broad band ? Tonal beepers cause annoyance even at a low sound pressure level. Broadband sounds are easier for site staff to distinguish the location and direction of travel of mobile plant and lorries.”

WBM always recommend the use of broad band reversing alarms on site. The only issue may be with extremal haulage contractors, but these instances can be addressed by minimising reversing on site.

“Would an audio demonstration help to communicate the EIA predication and everyday experience of dwelling holders to site noise ?“

This would help show the dwelling holders what the character and level of noise is likely to be and can be very useful. It is also beneficial to allow the dwelling holders to visit a similar site and to walk around the local dwelling areas.

Dr Robert Storey
Senior Consultant

(This document has been generated electronically and therefore bears no signature)