

1.0 Review of revised development proposal - Everest House

1.1 Observations on July 28th application with sealed windows to south facades

1.2 General observations and recommendations

1.3 There remains a failure to recognise the full relevance of 'agent of change' principles or what constitutes an acceptable internal noise environment and to appropriately protect existing commercial operations and sites from constraint. The assessment are therefore inadequate.

1.4 This proposal presents an improvement in terms of noise mitigation and impact assessment in some elements although substantially worse in others compared to the previous application for this building.

1.5 There remains both additional work in some key areas to be able to properly assess the potential constraints on commercial uses this development may produce and some significant concerns with the assessments that contradict and also the use of both contradictory and incorrect methodology.

1.6 As a result, as presented my recommendation is strongly of refusal. There remains inadequate information to properly assess the revised proposal but the evidence presented not only provides substantial contradictions throughout but it serves to indicate significant land use conflicts and a fundamental failure to meet 'agent of change' constraints. The main element that can be extracted from the assessments is of excessive noise and likely at night.

1.7 A key consideration is the use of incorrect background sound levels and failure to assess at night. In any event the assessments presented are rejected as not remotely accurate and not following guidance or the science.

1.8 The assessment using BS4142 and the separate Noise Impact Assessment of an earlier July 2020 date present a significant number of reasons for concern. Not only are there contradictions between the two methods, critically they repeatedly do not follow the science of acoustics nor the standards and guidance documents. They fail to report limitations in guidance and report their application, contrary to caveats within them, as if that is the norm.

1.9 Sealed windows to southern facades

- 1.10 It is to be recognised this introduces a lower quality of living but in most cases includes a corridor which acts as a single aspect form of development. Unfortunately, there are some exceptions. It is noted this relates to the southern facades and operable windows are provided either to north or east facing facades.
- 1.11 A critical issue here is the ability to be able to enforce as a constraint the alteration of windows to prevent them being rendered operable. In some cases, operable doors can be an issue but there is not evidence in the proposals that this will be an issue. There would need to be a condition preventing the alteration of facades and windows. This is not readily policed in the future.
- 1.12 A clear specification is required of windows so it can be determined their sound reduction is adequate in all frequency bands. One adverse effect of acoustic glazing can be the excessive reduction of mid and higher frequency sounds but continued penetration by low frequency sources. There has been no assessment of this potential issue other than two stated values and these are rejected as insufficient. There is no provision of spectral information on sources of noise.
- 1.13 In respect of the sources of noise, having regard to the revised plans, there assessment needs to focus more on sources to the north-west, north and north-east.

1.14 Contradictions

- 1.15 I have identified the contradiction of relying on a measured survey when at the same time KPA confirm such a method as not representative.
- 1.16 There are substantial contradictions in assessment. In the report of February 2020 a level of 73dB(A) at residential facades was predicted. Whilst this was a more exposed façade than current predictions are made at, the size of the difference cannot be justified.
- 1.17 Adding all the sources KPA now predict, a level of 48dB(A) is determined, based on their July 2020 BS4142 report. Furthermore, this is as a rated level (includes penalties). They do not report this level but adding their resulting levels together

this is the maximum value it gives. To compare the levels, the decibel penalties need to be removed leading to a difference between predictions now and in February 2020 in excess of 40dB(A). No explanation of this is provided whatsoever and it simply is not credible.

- 1.18 In the February 2020 report various calculations were provided and input into noise modelling software CadnaA. Measurements and then calculations of sources was undertaken in the July 2020 BS4142 report using an entirely different method but not then modelled using CadnaA despite already creating such a model. I also understand a model was created using SoundPlan, another software system based on ISO9613-2. Instead crude adjustments to levels were made. I have checked those calculations and find they are mathematically incorrect on so many levels. The sources are measured at different distances but then added as if all are of the same distance with a further distance calculation applied as if all are occurring at the same point.
- 1.19 In February 2020 no adjustments to façade measurements were made to determine the background sound level and in July 2020 3dB adjustments are reported although cannot be seen within the calculations nor the reported levels. Thus, it is stated but not seen. It is likely the measured levels should be adjusted downwards 3dB changing the assessment and further undermining it.
- 1.20 Sources of noise clearly operate for different periods of time and the times of operation they were measured are not reported. However, they are then aggregated as if all of the same time period with one exception. Unjustified adjustments are then made for building screening effects and in one case using negative directional effects. Positive directional effects were included in the noise model in the February 2020 report but in reality it did not reduce noise levels due to direction and clearly should not have led to a reduction in the July 2020 assessment, contrary to the process applied. The noise is not highly direction.
- 1.21 There appears no assessment of the spectrum of any of the noise sources whatsoever.
- 1.22 There is a failure to assess at night on a false assumption there cannot be commercial noise at night. This would require all the commercial sites to be restricted under the Town and Country Planning Acts so they cannot operate at

night and also that their plant cannot operate at night either. In contrast to that I have seen direct and secondary evidence that many do operate at night and there is significant plant noise also. This approach is not credible.

- 1.23 The empirical acoustic evidence that has been presented further confirms there are either serious anomalies in that data or there is a continuum of noise sources at night from commercial operations. One factor alone is a reported 10dB(A)¹ difference in LA90 levels at night between the eastern façade protected from the commercial sources and that facing them. The logical explanation of this variation in a statistical LA90 set of values is the western side of Everest House is subjected to significant continuing plant noise that the eastern façade is screened from. Traffic noise either on the highway or within the industrial estate cannot account for this differential. There is no investigation in the assessment of this anomaly.
- 1.24 Statistical sound levels (which are viewed likely to contain intrusive source noise) that were obtained on the northern side of Everest House (recorded on an unknown date for the report of February 2020), indicate a significant source of noise present for several hours during the day and background sound dropping to at least around 35dB(A). The wind was likely southerly due to the dominance of the M4² (M25) noise. When compared to the three sets of measurement data during July 2020 it indicates there is a significant and continuous source of noise (likely plant) to the west or south west of Everest House that has not been assessed. If this source is the reason LA90 levels are of order of 40dB at the western end and more than 10dB lower at the eastern end, then this source alone presents a risk of serious noise intrusion. This needs appropriate investigation.
- 1.25 Night-time impact.**
- 1.26 On the face of the evidence it indicates background sound levels potentially drop to below 25dBA during certain significant periods at night and even the KPA predicted levels for the commercial noise rated level substantially exceed this. In turn this indicates unreasonable noise intrusion.

¹ Review of the data indicates it is likely greater than this but 10dB(A) is what KPA have reported.

² The nearest motorway is the M25 to the south and this appears a typographical error.

1.27 Evidence indicates there is commercial activity at night and in any event there is a requirement to assess planning controls and determine if this is a potential possibility as well as actual happening.

1.28 Noise survey data.

1.29 The data in the BS4142 assessment indicates a significant noise producing event arose that suddenly stopped on the Sunday night. This is not considered.

1.30 Wind levels in the area were reasonably high during the survey and there is expected significant foliage noise from the nearby trees. Whilst wind speeds did not exceed that normally recommended for corruption due to wind over the microphone enclosure, it will have clearly caused atypical noise, especially at the 3rd monitoring position. This has not been considered.

1.31 Assessment methodologies

1.32 The commonly recognised methodology for the assessment of most forms of commercial noise upon residential use, both outside and inside buildings is BS4142:2014. For the situation inside the dwellings KPA seek to apply BS8233:2014, directly and contrary to its guidance. Their method therefore is wrong and baseless. Careful reading of BS8233 and BS4142 reveals this. The advantage of such an approach is that it allows an argument of substantially increased noise impact. That is not a basis for operating outside of the scope of the guidance and contrary to its clear caveats and advice.

1.33 When a situation arises where levels outside a façade may not be representative of impact internally, for example as there are not any operable windows nor any acoustically weak building elements, the context of this allows an adjustment.

1.34 This adjustment is not the adoption of BS8233 values for benign anonymous noise as that does not remotely reflect human response to the intruding noise and relates to noise dose and not unmasked noise character effects. The need is to consider the effect of noise attenuation both in relation to the intruding sources of noise and also background masking sounds. Typically background masking noise is attenuated more than many sources of intruding noise when moving inside and the intruding noise may become more dominant and intrusive internally as a result. Additionally, if internal levels become too low, an artificial, unnatural and alien type sound environment can be created that is adverse in

terms of its impact upon quality of living. Most people want to be able to connect and hear elements of their external environment provided they are not unpleasant.

1.35 Cumulative impact.

1.36 Noise impact upon residents is not just in terms of the noise from individual commercial sites but the total cumulative impact. Assessment in February 2020 was undertaken cumulatively but in the BS4142 report it only considered individually. Nuisance can equally protect residents in a cumulative impact scenario. This needs to be assessed but has not been considered.

1.37 These are just a few of the extensive concerns with the survey methods and the reporting of the data. Full reporting is required including at night and all raw data should be provided to enable snapshot checks on its reliability.

1.38 Agent of change

1.39 There appears a general failure to understand this policy in the assessment presented. Constraint considerations are not just of the existing operations but the potential operations also. For example, a B2 use site may not currently cause any adverse noise and may only operate weekdays 8-5pm. It does not reflect what they are permitted to do and may be constrained from doing in the future if a noise sensitive development is permitted.

1.40 The current operators of various sites may not utilise the full potential of operating 24/7 and generating significantly more noise. However, when that operator ceases operation and a new occupier considers the site they will review its suitability to their operations. Alternatively existing operators may want or need to expand. They may well want to operate 24/7 and not be constrained in their noisy operations and plant to be installed due to residential development.

1.41 Two common 'agent of change' example scenarios are considered below:

1.42 A supermarket may currently receive deliveries after 7am and before 8pm but have no planning controls over deliveries. Housing has then been permitted overlooking the delivery yard. As a result of the Covid-19 pandemic there has been a major shift to home deliveries of foods in the last few months which is likely a permanent change in society especially for the elderly. These require

goods arriving into the stores around 2am so they can be sorted and selected for home deliveries starting after 7am and leaving the store around 6am. Repeatedly, failure to assess the potential of this form of activity leads to unreasonable constraint on the operation to the store. In many cases the competition for such deliveries from large supermarkets is so great that stores which cannot provide overnight stocking will close, potentially permanently as they are constrained and cannot compete.

- 1.43 A warehouse and lorry park without planning restriction is used for national distribution of electrical goods. These can be loaded for delivery during the 2-10pm shift and whilst there is some noise disturbance to new housing permitted adjacent it is short of being an actionable nuisance. Deliveries leave early the next morning. The operators are now moving out and a refrigerated goods company is interested in the site. This will require a series of chillers that generate noise and costs of installation are massively increased due to the need to mitigate their noise to a lower level as a result of the housing. This is one deterrent but also refrigerated lorries have a separate diesel-powered refrigeration unit which cut in and out generating noise at random and necessary to keep produce cold. Additionally, these units emit low frequency noise that is difficult to attenuate and if near housing is effectively not preventable other than through extreme glazing systems. Refrigerated distribution represents a major proportion of the warehouse and distribution market which this site can no longer consider in terms of viability. The constraint on the land use is substantial.
- 1.44 Either of these scenarios are common and present serious issues for existing commercial operations.
- 1.45 In summary it is unacceptable to merely look at the current operations and hours of operation or even extending those hours. There is a need to look at the land use and what can currently be permitted on the land rather than what is currently occurring, in the planning sense. It needs to look at what can occur without constraint along with assessing future expansion of the site. The starting point therefore is the existing planning use class, what that can allow to occur and any planning restrictions.
- 1.46 This effectively requires a backwards assessment where the current constraints on commercial operators are considered and compared to those that will be imposed as a result of the proposed development. This form of assessment has

not been adequately undertaken by the developers or their acousticians in this case.

1.47 Other dwellings exposed to excess noise.

1.48 It is not a reasonable argument that other dwellings are exposed to excessive noise and therefore this development must be okay when it is also so exposed. No weight can be given to any absence of complaints, if that is the case as there is no information in this regard. Furthermore, the WHO have long identified only 5-10% of people adversely affected by noise are likely to complain. Thus, if there are complaints that is a strong indicator of a problem but the absence of complaints does not demonstrate the reverse.

1.49 Open windows

1.50 It is argued by KPA that windows are only opened slightly for ventilation purposes and noise levels during what is termed “purge ventilation” by the acoustician is wrong. Requirements for “purge ventilation” under the Building Regulations do not inform on the situation under planning controls, BS8233:2014 or in terms of nuisance. Approved Document F is also clear that the Building Regulations do not control mechanical ventilation noise but when testing it which is a requirement of those regulations the most pertinent UK guidance on domestic mechanical ventilation, produced by UK Government seeks testing under purge conditions and that it is not creating nuisance noise.

1.51 In relation to this site the noise from transport sources and the mechanical noise should not exceed 30dB(A) in a bedroom. Careful reading of BS8233 is clear and states:

1.52 “NOTE 5 If relying on closed windows to meet the guide values, there needs to be an appropriate alternative ventilation **that does not compromise** the façade insulation or **the resulting noise level**. If applicable, **any room should have adequate ventilation** (e.g. trickle ventilators should be open) **during assessment.**” (My emphasis).

1.53 “**If there is noise from a mechanical ventilation system, the internal ambient noise levels should be reported separately with the system operating and with it switched off.**” (My emphasis). The higher / highest ventilation setting that will clearly need to be operated at times and possibly through the night

- during a warm period will need to meet the requirements without compromising excessive internal noise levels from anonymous sources lacking specific character.
- 1.54 This is not an issue requiring compliance with the Building Regulations which is a separate raft of legislation with different aims and objectives
- 1.55 A critical issue is summertime temperature control and the requirement in the Building Regulations does not relate to the competing ventilation and noise requirements. Approved Document F is dated 2010 and states:
- “4.34 – The noise caused by ventilation systems is not controlled under the Building Regulations. However, such noise may be disturbing to the occupants of a building and it is recommended that measures be taken to minimise noise disturbance.”
- 1.56 It can be seen therefore that Approved Document F is not directed at noise control under the Building Regulations. Approved Document F gives further advice about noise, discouraging use of noisy ventilation systems, seeking specification of quieter products and minimising noise by careful design. The document pre-dates BS8233:2014 and is not remotely a procedure relevant to compliance with BS8233:2014.
- 1.57 The most up to date document in relation to Building Regulation compliance in this case is the UK Government’s “Domestic Ventilation Compliance Guide” which is provided to help compliance with the Building Regulations. It states:
- “The number and location of terminals installed in a space should ensure effective air distribution and ensure that air noise is not a nuisance when the system is operating at boost airflow rates”
- 1.58 It is clearly envisaged therefore, even under the Building Regulations that operation of the system at its higher rate is required for testing noise. The Building Regulations do require testing of mechanical ventilation and this guidance implicates noise on the highest settings as a relevant part of that test.
- 1.59 There is a fundamental misrepresentation of the situation regarding window opening in the report and this is an increasing problem with some acousticians who argue it is acceptable to be unable to fully open windows without excess

noise. Such a situation is a material interference with use of the dwellings by its occupants and objective evidence of nuisance.

1.60 To be unable to open windows in a desired way to ventilate naturally when opening windows is available is what is termed a “loss of enjoyment” i.e. loss of exercise of rights in relation to the use of the property. A significant proportion of the population prefer to use and sleep within their home with their windows open. If they are unable to do so because of excess noise this is objective evidence supporting a finding of either statutory or civil nuisance.

1.61 As a result of the above, the premise of the assessment that windows are only opened wider to purge air as required by the Building Regulations is misleading.

1.62 Application of BS8233:2014 criteria to industrial and commercial noise.

1.63 This aspect of the assessment is directly contrary to the guidance provided in BS8233:2014. BS8233 is clear its internal guideline levels apply to “steady” “anonymous” sources of noise and not those with “specific character” as arising here. It is also clear that BS4142 should be used in such cases. Failure to recognise these limitations is of significant concern.

1.64 Maximum noise levels

1.65 There is significant evidence of even benign sources of noise causing awakenings within dwellings at relatively low levels. In terms of transport noise these are recognised from 42dB L_{Amax}(f) internally. Maximum noise levels at night clearly exceed or are up to 80dB at times when outside indicating a reduction of the order of 35-38dBA is required from the façade level internally. This should be achieved where windows are sealed and of appropriate acoustic design but not where they are operable.

1.66 KPA - BS4142:2014 assessment 23rd July 2020

1.67 Specific additional points mostly in bullet form

1.68 There is concern that noise level measurements of industrial sources during the Covid-19 pandemic will not be representative. KP concur with that in their report of 10th July 2020 stating clearly it would not be representative. Nevertheless, they then seek to rely on a site visit and site monitoring from 17th to 20th July, a weekend period. They are therefore contradicted by their own report.

- Furthermore, during a quieter than normal period, selection of a Monday morning is unlikely to reflect the sound environment expected at other times.
- 1.69 KPA state there is no external plant. This is patently incorrect from their own photograph, figure 2.6 (plant noise at Elis training) that has direct line of sight of the proposed residential development where there are operable windows. Furthermore, the data indicates some continuous significant sources of noise to the west and / or south west of Everest House.
- 1.70 **Commercial sources** – There was only about 3 hours assessment of commercial sources of noise on one Monday morning during Covid-19 constraints. These related to 5 different commercial sites indicating minimal time at each. They are not sufficient to assess commercial sources of noise in this locality.
- 1.71 **Night time sources** – These have not been assessed.
- 1.72 **Elis training** – Its plant noise has not been assessed.
- 1.73 **Eduzone** – This was assessed on the basis of a single car movement. This is not credible. They are a supplier of educational materials and clearly will have deliveries and collections by lorries or large vehicles.
- 1.74 There is no assessment of roof top plant including arising as a result of the office conversions being undertaken.
- 1.75 **Measurement distances** – Some are reported as 1-2 metres. This is not credible as parts of those sources will be screened and many are moving sources so that distance could not be maintained.
- 1.76 **Weather** – This is not reported but there were periods of high winds over parts of the survey period. This is not addressed.
- 1.77 **Periods of in-operation** – Various of the commercial operations were claimed to be inoperative Saturday and Sunday. Notwithstanding this the data indicates some significant sources of noise during these periods which should have been identified.

- 1.78 **Rating as light industrial** - This rating appears incorrect. There are B8 warehouse and storage and distribution, B2 and potentially sui-generis uses as well as B1.
- 1.79 **Spectrum content** – There is no consideration of this important element of source noise.
- 1.80 **Data anomalies arise** – For example, at location 1 LAeq values are within 2dB of location 3 daytime but at night for the same period there is a difference of the order of 10dB presented. This indicates differential influences. At location 2 the LA90 and LAeq become close indicating steady sources.
- 1.81 **Calculations of resulting noise levels** – There is no explanation of these or the decibel penalties applied. When I attempted to replicate them they did not add up. There were also deductions which were not credible or accurate. In one case it is argued an 8dB reduction for 10% operation of the plant. This would in fact give a 10dB reduction. However, if all other readings were averages why was a different level presented that only related to 10% of the time of the measurement and without explanation?
- 1.82 KPA - Noise Impact Assessment 10th July 2020**
- 1.83 There is an admission by KPA a survey during the Covid-19 restrictions would not be representative which then contradicts the BS4142 survey and report by KPA a few days later.
- 1.84 The assessment looks at ventilation meeting Building Regulation Approved Document F. This is inappropriate. I have already addressed this above. The assessment also wrongly considers the industrial uses as “light industrial”.
- 1.85 The assessment wrongly judges compliance internally against Table 4 of BS8233:2014 contrary to its caveats and broader guidance. Furthermore, there is no reporting that the standard is being applied outside of its scope and contrary to its stated limitations. It also includes music noise.
- 1.86 **Amendments and updates to WHO 1999.** There is a failure to report these and the stricter criteria that has evolved as a result. For example, awakening arising at internal L_{Amax}(f) levels of 42dB and not sleep disturbance at 45dB L_{Amax}(f).

- 1.87 Incorrect emphasis is placed on Building Regulation compliance rather than Town and Country Planning criteria in relation to ventilation. The analysis of ventilation constraints upon the development is therefore misleading and does not address the planning issues arising.
- 1.88 Assessment of industrial and commercial sources of noise internally is not only wholly contrary to guidance but details of it contradict the subsequent BS4142 assessment. For example, the distance from the Cuffley Motors Workshop is stated as 32 metres in this report and 52 metres in the BS4142 report. Whilst the end part of Everest House is now to be office use, it is that development the KPA assessment was considering.
- 1.89 The assessment presented wholly contradicts the BS4142 assessment separately undertaken and the separate predictions of industrial and commercial noise modelled in the February 2020 report using CadnaA.
- 1.90 The noise modelling information now provided using SoundPlan is grossly inadequate and effectively meaningless. The results are not credible. For example predicted noise levels will vary with height across facades and from one end to another. Those presented are single figures for a whole façade at all heights. Furthermore, the predicted spectrum information is required to determine likely window performance but not provided.
- 1.91 Low frequency noise needs to be assessed but has not been. However, KPA do propose criteria in the 63 and 125Hz bands internally. It is not entirely clear but is presumed they mean octave band levels. Regardless, this approach is inappropriate as we now tend to look at low frequency noise having regard to third octave bands and the levels within NNR45. This would set levels of 42dB in the 63Hz 1/3rd octave band and 36dB in the 125Hz 1/3rd octave bands. This compares to 51dB in the 63Hz band proposed by KPA and 39dB in the 125Hz band.
- 1.92 There is also incorrect reliance on BS8233 with windows open for noise with specific character wholly contrary to its guidance. Notwithstanding the erroneous methods applied, there is a failure to assess the contribution of mechanical ventilation noise generated internally that would be critical in this case and which would need to consider that noise on a high ventilation setting.

- 1.93 In summary there are multiple contradictions and repeated flaws in the assessment that does not show a satisfactory noise environment will result. Furthermore, it also shows 'agent of change' policy requirements are not met. The premise of the approach to assessment is patently incorrect and as a result, places existing businesses and the commercial sites they operate from at risk of constraint.
- 1.94 The assessment incorrectly assesses music noise impact as part of the total commercial noise but using a standard that is primarily for transport noise. This music noise should be assessed entirely separate.
- 1.95 The assessment fails in entirety to consider the impact of the floodlit pitch area which appears is used for ball games.
- 1.96 In essence the assessment methodology operates wholly contrary to the guidance referenced and appears to fail to apply or demonstrate appropriate impact criteria for the critical issues in relation to noise impacts in this case.
- 1.97 Potential outcome of incorrect assessment.**
- 1.98 To address just one point by way of example with the misleading approach adopted; if a resident opens a window at night in their bedroom or during the day and complains about noise, an assessment of nuisance is obligated upon the local authority.
- 1.99 This nuisance assessment would, amongst other things, relate to the character and nature of the noise, its frequency and duration, dominance, attention drawing features, how it modifies use of the dwelling, audibility throughout it and a range of other non-acoustic and acoustic factors but it would not assess using the levels set out in BS8233:2014. The courts have recognised the inapplicability of such guidance in numerous cases. Furthermore, if any decibel level assessment was to be undertaken it would be through the use of BS4142:2014 outside of the window or other forms of internal criteria specific to the source of noise under consideration, such as guidance on music noise. It follows any 'agent of change' assessment needs to adopt the same approaches.

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