REBUTTAL PROOF OF EVIDENCE:

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APPEAL REFERENCE: APP/M1520/W/22/3310794

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Appendices

1. INTRODUCTION

1.1. **Scope of Rebuttal**

1.2. This Rebuttal Proof of Evidence ('rebuttal') has been prepared in direct response to address certain matters raised and on a number of points in the evidence of Mr Davis (the Council's appointed Noise Expert), provided on behalf of Castle Point Borough Council.

1.3. In preparing this rebuttal I have not addressed every point submitted in evidence by Mr Davis but this does not mean that I am in agreement with any point by virtue of omission.

1.4. It should be noted that Mr Davis Proof of Evidence is based on previously submitted acoustic reports, produced in relation to planning application (Ref. 21/0532/OUT), one of which was undertaken by an earlier acoustic consultancy, Integrated Acoustics and another by an ex-colleague who has since left HA employment. I reiterate my Proof of Evidence statement that I cannot fully comment upon the content of conclusions within those reports; and therefore have provided my own Proof of Evidence. A number of the points raised by Mr Davis in his Statement have been addressed within my Proof of Evidence. This rebuttal has been produced in answer to Mr Davis comments, it is therefore made in relation to my own Proof of Evidence but provides clarification over acoustic parameters and guidance. I also address other comments raised in Mr Davis Statement.

1.5. This rebuttal has been prepared on the same terms as my Proof of Evidence, dated 31st January 2023, and it remains that the opinions expressed are my true and professional opinions, given in accordance with the guidance of my professional institution.

2. MR DAVIS' USE OF PREDICTED SOUND LEVELS

2.1. My Proof of Evidence provides predicted noise levels of both the ambient (dB L_{Aeq}) and rating (dB $L_{Ar,Tr}$) level, so as to make clear the actual noise levels and levels with penalties incorporated, so as to lessen misinterpretation.

2.2. The $L_{Aeq,T}$ is the 'continuous equivalent sound level' over a specified period of time (e.g. daytime, 07:00-23:00 hours, dB $L_{AEq16\text{-}hour}$). This is a steady noise level which, over the period of time under consideration, contains the same amount of A-weighted sound energy as the time varying noise. It is the ambient level. The L_{max} Level is the maximum A-weighted sound pressure level occurring within a specified time period. The $L_{Aeq,T}$ and L_{max} levels are used when assessing noise levels in internal and external amenity areas against the criteria in BS 8233: 2014, (s.7.7.2, p.24 Table 4 Core Document C8) and ProPG: 2017 (Core Document: C10).

2.3. The $L_{Ar,Tr}$ is the rating level, it is the specific sound level plus any adjustment (penalties) for the characteristic features of the sound. It is used when assessing site suitability under BS 4142: 2014 +A1: 2019.

2.4. In section 11.1.3 of his proof Mr Davis says that *"drawing AD961-1 shows that the achieved external noise levels are predicted to between 51-60dB $L_{Aeq,16hours}$ which is in excess of current guidance and local authority requirements "*. Similarly in his sections 11.1.8 and 11.1.9 Mr Davis refers to prospective occupiers being exposed to *"existing elevated noise levels of 51-60dB"* as being *"above the levels Castlepoint would expect"*.

2.5. There are two errors here:

2.5.1. First, it appears that the rating levels provided in my ex-colleague's report have been misinterpreted throughout Mr Davis Statement as 'ambient levels' and have been quoted as thus being 'too high' or 'not suitable' for local criteria. As explained above, BS 8233 contains the criteria of assessing internal and external noise levels, and it uses ambient levels. The predicted noise levels on drawing AD961-1 which Mr Davis refers to are a <u>rating level</u> (dB $L_{Ar,Tr}$) and not an ambient level (dB L_{Aeq}). As seen from my Proof of Evidence (appendix D5-D6), the

predicted external ambient level in fact ranges between 45 dB-52 dB $L_{Aeq,16\ hours}$. These ambient levels are not 'in excess of guidance'.

2.5.1.1. In any event it should be noted that external levels between 51-60dB $L_{Aeq,\ 16\ hours}$ are not unusual for a proposed development site within the United Kingdom. This is because many premises are constructed near transport networks (road, rail, air), in urban locations (city and town centres) or near to alternative education, commercial and/or industrial noise sources.

2.5.2. Second, Mr Davis is incorrect in suggesting that, with windows open, the future occupiers will be exposed to the predicted external noise levels (which he wrongly identifies as being between 51-60dB). BS 8233: 2014 states: "*If partially open windows were relied upon for background ventilation, the insulation would be reduced to approximately 15 dB*" (Core Document: C8, Section G.1) and ProPG: 2017 states *"the acoustic performance of the building envelope will be reduced in the event windows are opened for ventilation or cooling purposes, typically reducing the insulation to no more than 10 to 15 dB(A)"* (Core Document: C10, Section 2.33). Therefore on the basis of my assessed ambient noise levels of 45dB-52dB $L_{Aeq,16\ hours}$, the internal level experienced by future occupiers with the windows open would be between 36-45 dB(A).

2.6. In Section 13.1.3, Mr Davis states *"All the façade levels are in excess of what is expected from the guidance of BS8233: 2014".* However, BS 8233: 2014 (Core Document: C8), does not provide an expected façade level; and Mr Davis does not reference where in the guidance document, he draws his assumption. BS8233: 2014 (Core Document: C8) gives guidance on sound insulation and noise reduction for buildings. Section 5.2.2.1 of BS8233: 2014 (Core Document: C8) does state: "*The existing and expected noise source(s) should first be identified and the designer should apply the following procedures.*

a) Select metrics to use for measuring or predicting noise levels (e.g. $L_{Aeq,T}$, or Lp in octave or third octave bands).

b) Assess effects of topography and other features, such as noise screens or reflecting surfaces.

c) Measure or predict noise levels at strategic points. In some complex situations it might be worth drawing a contour map of external noise levels.

d) If appropriate, assess noise levels due to user activities around the buildings and site.

The levels of existing noise and noise expected in the foreseeable future should be based on measurement where practicable, or may be predicted if there is reliable information".

2.7. BS 8233: 2014 does provide a design criteria for external noise within traditional external areas in section 7.7.3.2. (Core document C8), but it does not provide a recommended level as to what would be an expected level at the external façade of a residential premises.

2.8. The Standard provides guidance on what the internal levels should be. This is so that the external façade (building envelope) can then be constructed to a level affording appropriate mitigation.

2.9. This is the process that I have undertaken in my Proof of Evidence, Appendix E – Glazing Calculation (E1-E2); and was undertaken in the acoustic report submitted in support of planning.

3. MR DAVIS SUGGESTED CRITERIA

3.1. **Statutory Nuisance**

3.2. In section 6.1.1 Mr Davis states:

> *"It is generally accepted however, that if a noise level is at least 5dB (or 10dB if tonal) below the minimum background L90(15minutes) at 1m from the nearest noise sensitive residential window, then the risk of a statutory noise nuisance is likely to be avoided".*

3.3. This comment is made without reference to guidance or standard. Whilst I agree that such a situation would be unlikely to cause a 'statutory nuisance', in my view it is overzealous.

3.4. Mr Davis comment suggests that a noise source that is not 10dB below background would constitute a statutory noise nuisance. This is not the case. Local authorities, typically determine if a statutory nuisance occurs in line with the Environmental Protection Act: 1990. This act does not require the local authority to undertake measurements of the noise source to determine if a statutory nuisance occurs and a numerical level is not required, and Mr Davis does not provide evidence of a supporting standard.

3.5. British Standard 4142: 2014, provides methods for rating and assessing industrial and commercial sound, in order to ensure the introduction of plant near residential, or vice versa, won't significantly impact upon residents. This standard specifically states using the 'typical level':

> "*In using the background sound level in the method for rating and assessing industrial and commercial sound it is important to ensure that values are reliable and suitably represent both the particular circumstances and periods of interest. For this purpose, the objective is not simply to ascertain a lowest measured background sound level, but rather to quantify what is typical during particular time periods"* (para 8.1 Core Document: C9).

3.6. Yet, contrary to the latest guidance, Mr Davis suggests use of the lowest or *'minimum level'* for background to identify whether a statutory nuisance is likely to be avoided (and thus by implication if it is *unlikely* to be avoided). Should this be the case then there would arguably be significantly more statutory nuisance complaints across UK local authorities. For example, when a premises installs an air conditioning unit or kitchen extraction fan, an assessment is undertaken in line with BS 4142: 2014 (as

this is the main guidance utilised by local authorities) to assess the impact of commercial/industrial noise sources upon nearby noise sensitive users. This guidance utilises the typical background level, not the minimum. Use of the minimum would in many circumstances require over-engineering of plant mitigation, place an unreasonable cost and engineering burden on an applicant, on many occasions prevent business development; and not be in the spirit of the NPPF. Finally, the figure provided by Mr Davis, at receptor is also just a numerical figure, not referenced and with no consideration to the noise source or context.

3.7. **Internal Noise Criteria**

3.8. Mr Davis states that Castle Point Borough Council, require the following internal noise criteria to be met, however he does not state where this requirement comes from:

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living Room	35 $L_{Aeq,\ 16hour}$	-
Dining	Dining Room / Area	40 $L_{Aeq,\ 16hour}$	-
Sleeping (daytime resting)	Bedroom	35 $L_{Aeq,\ 16hour}$	30 $L_{Aeq,\ 8hour}$ 45 L_{Afmax}

Table 1 – internal noise criteria (Source: Mr Davis Proof of Evidence, section 7)

3.9. These figures are similar to the desired internal criteria referenced in BS8233: 2014 (Core Document: C8) for clarity reproduced below.

Table 4 **Indoor ambient noise levels for dwellings**

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35 dB $L_{Aeq,16hour}$	—
Dining	Dining room/area	40 dB $L_{Aeq,16hour}$	—
Sleeping (daytime resting)	Bedroom	35 dB $L_{Aeq,16hour}$	30 dB $L_{Aeq,8hour}$

Table 2 - Source: BS8233: 2014 *'Guidance on sound insulation and noise reduction for buildings'* s.7.7.2, p.24 Table 4

3.10. These figures have been utilised within my Proof of Evidence to assess the internal noise criteria. I have demonstrated that the criteria can be met utilising the specified façade material, window unit comprising frame and glazing composition; and acoustic trickle ventilators. My client may desire to install mechanical ventilation, as that would give equal to or better performance than acoustic trickle ventilation, but it is not a requirement in order to meet the internal criteria.

3.11. Mr Davis last bullet point in his section 7.1.1 states the following:

> "*It is also expected that to achieve an acceptable internal noise climate that individual noise events should not exceed 45dB L_{AFmax} on a frequent basis. The acceptability of the frequency of events will depend on the level of exceedance of the 45dB L_{AFmax} criteria. Up to 10 events may be acceptable for small exceedances (<5dB) whilst for high exceedances (>=5 dB and <10 dB) less than 5 events will be acceptable. Events in excess of 10dB above 45dB are not permitted"*.

3.12. Mr Davis does not reference where this requirement comes from. It is not given in the local plan or local policy. It is not a criteria of BS 8233: 2014 (Core Document: C8), see table above. Note that the parameter L_{AMax} is referenced in the superseded version of BS8233, 1999. It is also referenced in ProPG 2017 (Core Document: C10) guidance, on both documents it relates to night-time (23:00 – 07:00hrs) periods only. Reference is made that in bedrooms at night, individual noise events should not normally exceed 45dB L_{AFmax}. There is no reference in these guidance documents to Mr Davis statement that for residential properties "*Up to 10 events may be acceptable for small exceedances (<5dB) whilst for high exceedances (>=5 dB and <10 dB) less than 5 events will be acceptable. Events in excess of 10dB above 45dB are not permitted*".

3.13. As seen within my Proof of statement the specified glazing calculations (appendix E) illustrates that the internal noise criteria can be met for both ambient and maximum noise levels meet the BS 8233: 2014 (core Document: C8) and ProPG: 2017 (core document: C10) guidance criteria. The night-time noise criteria can also be seen to be relatively low as seen in the time histories in appendix B within my Proof of Statement.

3.14. **External Noise Criteria**

3.15. Section 7.1.2 of Mr Davis Statement states that the "*maximum day time noise level in outdoor living areas exposed to external noise should not exceed 50dBA $L_{Aeq\ 16\ hour}$ [free field]*". It is unclear if this a particular requirement of Mr Davis, a requirement for this site or a local authority criteria made across the borough. No policy support has been referred to and no other reasoning has been provided as to this requirement.

3.16. BS 8233: 2014 (Core Document: C8) provides guidance on external amenity requirement stating:

"For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited" (para 7.3.2 Core Document: C8)

3.17. As seen within appendix D5 and D6 of my Proof of Evidence the predicted ambient external amenity levels are predicted to achieve $\leq$ 50 dB $L_{Aeq,16hr}$ for the majority of the external amenity areas when assessing the noise levels from Benfleet Scrap, (which is the dominant noise source, when it is in operation).

3.18. Due to the location of the site, in close proximity to a school, adult day care centre and road and air networks, there is a potential that 50dB $L_{Aeq,T}$ would not be achievable across all of the external amenity areas for the whole of the site continuously, as is likely to be the case for much of South Benfleet and the south-east of England. However, the site does meet the BS 8233: 2014 defined upper desirable guideline value of 55 dB $L_{Aeq,T.}$ for external amenity.

3.19. I note in section 11.1.4 that Mr Davis refutes that the site is located within an urban setting and in section 11.1.6 that the site is affected by elevated transport noise. However, Mr Davis does not provide an alternative classification. Whilst undertaking the manual measurements, with the scrapyard in operation, road traffic was noted, as noted in table 4.2 of my Proof of Evidence. In addition, on-site, I have heard school children at play, and ancillary noises typical of urban localities.It should also be noted that BS 8233: 2014, provides city centres or urban areas adjoining strategic transport network as examples for the external noise criteria of 55dB. It does not state that an external noise criteria of 55dB can only be acceptable in these situations.

3.20. Finally, whilst the measured noise levels do not exceed the upper desirable criteria of 55dB $L_{Aeq,16hr}$ I none-the-less draw attention to the above extract of BS 8233: 2014, section 7.7.3.2 'Design criteria

for external noise' final sentence which states: *"development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited."*

3.21. I present further manual measurement results undertaken on a Sunday afternoon, taken on 12th February 2023, between 11:15 to 12:15 hours. The purpose of these measurements were to determine the typical noise climate when the scrapyard was closed and allow for subjective comments to be made. Purposefully the measurements were made outside of rush-hour and without Benfleet Scrap in operation. A site plan identifying the location of monitoring is shown in Appendix A. The summary of results with subjective comments in Appendix B. As seen from Appendix B, the site is dominated by road traffic from the local and main roads which are in close proximity to the site. I found that the dominant noise sources when the scrapyard was not in operation was road traffic, birdsong, and aircraft (recreational and commercial). The dominant road traffic noise was audible from the local road network. On occasion, what audibly sounded like a few vehicles racing / high revving vehicles were noted to stem from the direction of the A127. It should be noted that noise from road traffic, is likely to become more dominant and elevated during rush hour, due to the close proximity of A130 and A127. Roads, are typically quieter on Sundays than they are during the week.

4. OTHER MATTERS

4.1. In section 11.1.11 and 13.1.4 Mr Davis discusses his concern over future occupiers experiencing elevated internal noise levels in the summer months when windows are opened to allow for ventilation.

4.2. It should be noted that ventilation is a requirement all year round, not just in the summer months, as indicated by Mr Davis comments. Within my Proof of Evidence, section 6.41 and Appendix E, I evidence that acoustic trickle vents are available that would work with the combined window specification, enabling internal noise levels to be met whilst providing ventilation. This is an approved method of ventilation under Building Regulations Approved Document F, therefore windows would not need to be opened for ventilation purposes. However, as my Proof of Evidence states in s.6.41 *"Windows should still remain openable to allow for purge ventilation of VOCs, generated during activities such as repainting, occupiers' choice and for fire Means of Escape requirements."*

4.3. Should it be a concern that windows are more likely to be opened in the summer, due to solar gains and overheating then this concern is addressed at detailed design stage and like ventilation, enforced through the Building Regulations Approved Document O – Overheating (ADO).

4.4. **Approved Document O – Overheating**

4.5. Approved Document O – Overheating (ADO) provides statutory guidance on overheating within new residential buildings in order to satisfy Part O of Schedule 1 to the Building Regulations 2010. ADO was first issued in December 2021 and came into force on 15th June 2022. Requirement O1 aims to protect the health and welfare of occupants of the building by reducing the occurrence of high indoor temperatures. Requirement O1 as set out in the Building Regulations 2010 is as follow:

(1) "Reasonable provision must be made in respect of a dwelling, institution or any other building containing one or more rooms for residential purposes, other than a room in a hotel ("residences") to-

a) limit unwanted solar gains in summer;

b) provide an adequate means to remove heat from the indoor environment.

(2) In meeting the obligations in paragraph (1)—

a) *account must be taken of the safety of any occupant, and their reasonable enjoyment of the residence; and*

b) *mechanical cooling may only be used where insufficient heat is capable of being removed from the indoor environment without it."* .

4.6. Section 2.11 of the ADO provides further information in relation to Requirement 01 2b, stating that *"The building should be constructed to meet requirement O1 using passive means as far as reasonably practicable. It should be demonstrated to the building control body that all practicable passive means of limiting unwanted solar gains and removing excess heat have been used first before adopting mechanical cooling. Any mechanical cooling (air-conditioning) is expected to be used only where requirement O1 cannot be met using openings."* .

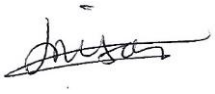
4.7. Section 3 of ADO ensures the overheating mitigation strategy is useable in relation to noise and states *"In locations where external noise may be an issue (for example, where the local planning authority considered external noise to be an issue at the planning stage), the overheating mitigation strategy should take account of the likelihood that windows will be closed during sleeping hours (11pm to 7am)"*. Therefore the noise ingress from external sources must be considered in context with overheating. This is to ensure an occupant can have *'reasonable enjoyment'* of their residence. ADO therefore provides night-time internal bedroom noise limits with windows open as follows:

"Windows are likely to be closed during sleeping hours if noise within bedrooms exceeds the following limits:

a) *40dB $L_{Aeq,T}$, averaged over 8 hours (between 11pm and 7am).*

b) *55dB L_{AFmax}, more than 10 times a night (between 11pm and 7am)."*

4.8. ADO recommends that the guidance found In the Association of Noise Consultants' Acoustics, Ventilation and Overheating: Residential Design Guide (2020) is followed when considering noise impacts during overheating. Concerns in relation to overheating would, therefore, be satisfied in order to achieve Building Regulation approval.

Signed: 

Dated: 13th February 2023

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