

Stephen Evans and Ian Goddard
Evans paving Products
(via email)



7th October 2019

Dear Stephen and Ian

J2811 – 15 Lower Road, Bedhampton. PO9 3LH

I write further to my visit with Ellie White (Henry Adams Planning) and Stephen Evans on Thursday 3rd October 2019.

Scope

It is understood that the use of the commercial building, known throughout the report as 15 Lower Road, is being regularised via a new planning consent to include a B2 use internally. The application for regularisation is being made by Henry Adams Planning.

It is understood that the concrete operation has occurred at the site for the last 3 years without any noise complaints having been received.

Site Layout and Plans

Photographs of the site can be seen in Figures 1 and 2 below. It is understood that the works are carried out inside the building with the two metal shutter doors closed.

The building is effectively comprised of three main areas with these divided up equally into thirds. These being compartmentalised offices and a mezzanine floor, an open floor area on which the moulds are placed and a storage area. The building itself is a typical commercial Kingspan profiled metal with insulation in between two metal layers and a flat roof, also Kingspan.



Figure 1. Commercial Building at 15 Lower Road, Bedhampton.

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Figure 2. Photographs inside 15 Lower Road, Bedhampton

Hours/Days of use.

The commercial building or more specifically, the operation of concrete manufacture is only carried out between the hours of 09:00 hours to 14:00 hours, Monday to Friday only. There are no manufacturing operations carried out at the weekends and on Saturdays, deliveries are made to customers. At the time of the site visit at 14:00 hours on 3rd October 2019, activities were not occurring.

Processes carried out

Within 15 Lower Road, concrete products are made, such as corner stones or paving slabs, which may have specific shapes or designs included into the mould. The process is simple and is always carried out internally inside the commercial building. No external operations occur. The process involves two employees only and occurs inside with the roller shutter doors closed.

A single electric cement mixer mixes the ballast, sand, concrete and water to make the concrete mix. The wet concrete is then placed using spades by hand into wooden moulds as required. The moulds are then placed onto a vibrating table which removes any air bubbles ensuring that the concrete products remain robust and not brittle. With the air bubbles removed, the moulds are then stacked on the flat surfaces/floor of the workshop area where they dry/cure for a 2-day period. At the end of the curing process, the moulds are emptied by hand and the end products are stored either inside the workshop or inside one of the ISO containers externally.

It is relevant to note that the two pieces of plant used are not used at the same time and can practically only occur one in every three days, due the space needed to cure the products. This is therefore an internal and intermittent operation. In terms of context, the plant would not be used more than 3 hours in any weekday.

Measurements of the sound pressure levels were made of both the electric cement mixer (66.7 dB L_{Aeq}, 1 minute, measured at 1.6m) and the vibrating table (86.5 dB L_{Aeq}, 1 minute, measured at 1.6m) to inform any computer modelling exercise.

There are no requirements for individuals or customers to visit the site and the only deliveries are likely to be ballast and/or cement which are made on a monthly basis.

Site Soundscape

It is relevant to note that the dominant noise source which forms the external soundscape is that of road traffic noise of both the A27(approximately 81m to the West) and the A3(M) located further West, approximately 156m). The road traffic noise is heard all across the site.

It is also relevant to note that 15 Lower Road is lower than Lower Road itself, by a number of meters, with mature planting in between the commercial building and the residents to the North.

Computer Modelling and Noise Predictions

As stated above, the location of the commercial building and its relationship to other residential buildings is known from a site location plan drawn from the Councils planning website. The Kingspan construction panels of the building and profiling are commercially available and are known to have an insertion loss of 25dB R_w . The two metal shutter doors have been modelled using 22dB D_w which was measured at another commercial site with similar roller shutter doors. The three rear skylight style Kingspan windows (non-opening) were also included in the model with an R_w of 15dB, which run from West to East. The fourth window serves an office area.

To ensure a robust assessment, the louder of the two pieces of plant (ie the vibrating table) which was measured has been used in the assessment. The vibrating table was subjectively the loudest piece of plant used and the recorded spectral profile was copied directly into the noise modelling software (IMMI) to ensure that it remained as accurate as possible.

Receptor positions have been placed at the nearest residential properties with measurement positions located at ground floor (1.5m) and first floor windows (4m).

Whilst there is a clear difference in height between the commercial building and Lower Road, to present a worst-case scenario, the noise modelling software has assumed flat ground and propagation. Vegetation and mature planting are also noted to separate the residential properties to the North, however, in the interests of a conservative assessment, these have not been included within the noise modelling software.

IMMI noise modelling software may be used to predict sound levels by constructing an accurate model and placing both sound sources and reception points within the built model. The modelling software faithfully replicates the methodology in ISO 9613 for sound propagation and includes items such as barriers, reflection and ground effects. An area sound source was created, complete with the roller shutter doors modelled on the Northern elevation to ensure that the model runs as accurately as possible. The grid sizes for the computer modelling were also kept as low as possible (0.5m) to represent any minor changes in the noise contour generation and predictions.

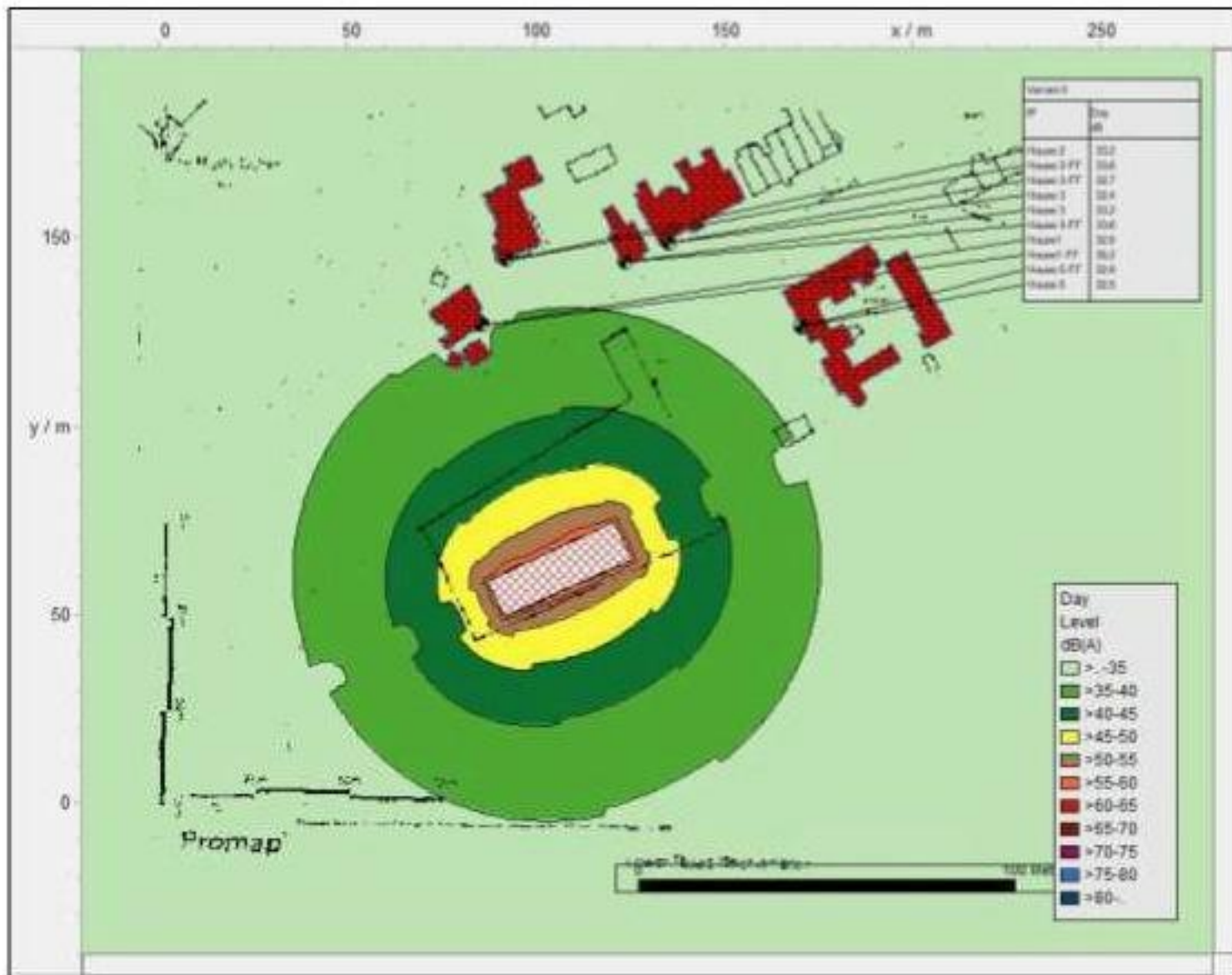


Figure 3. Predicted Noise Contours from Vibrating Table.

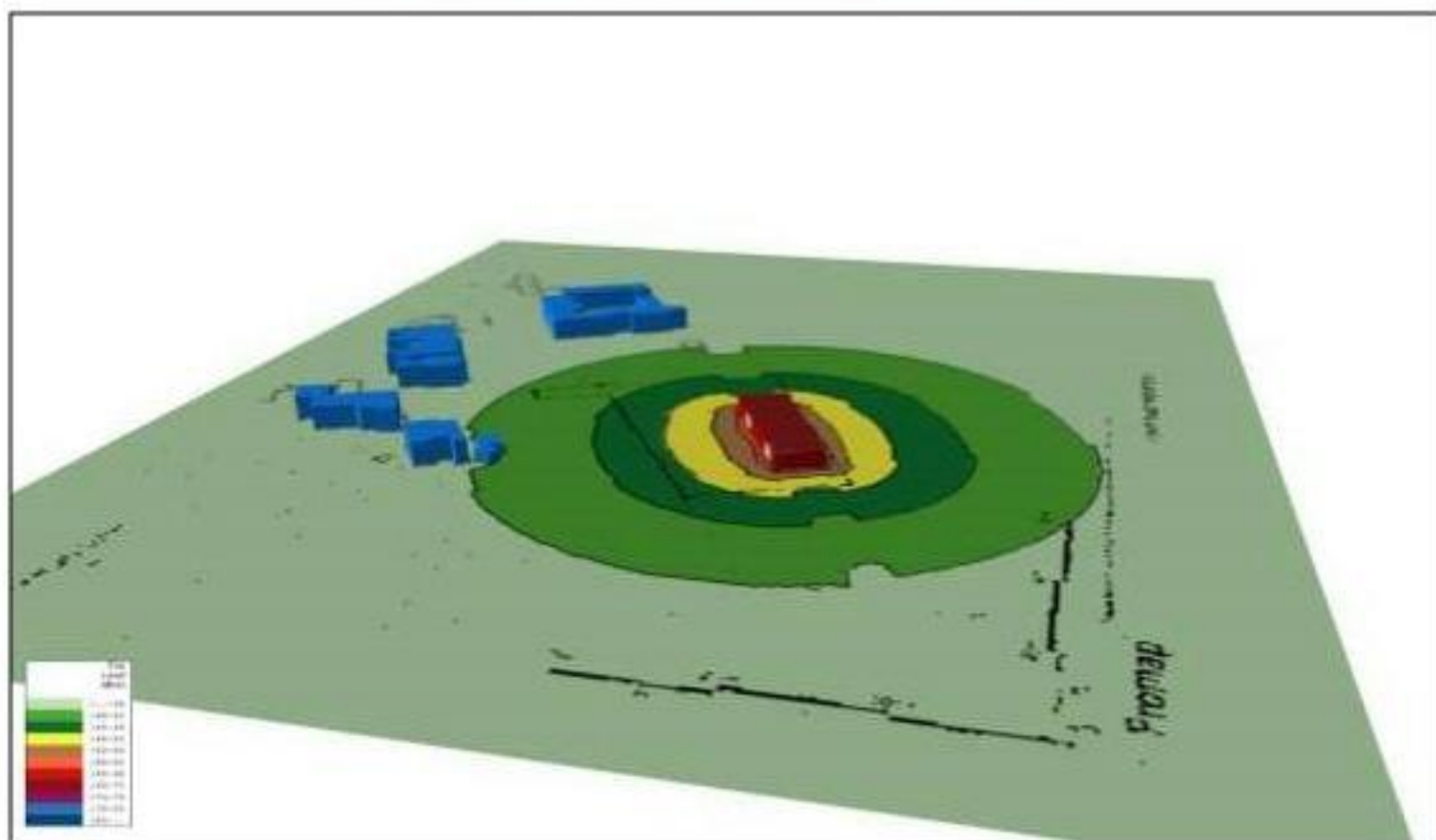


Figure 4. 3D View of Noise Contours

Noise Modelling Predictions

Whilst the noise contours can be seen graphically above in Figures 3 and 4, the predicted sound pressure levels can be seen in Table 1 below. These do not include for any on time correction and as previously discussed represent a worst-case scenario. The predicted highest noise level is seen to occur at the closest property to the North at 35.2 $L_{Aeq, dB}$.

Property	Predicted $L_{Aeq, 1 \text{ hour}, dB}$	Façade Correction (+3dB)	dB losses through an open window (-15dB)	BS8233:2014 daytime 16 hour level	Difference
House1	32.8	35.8	20.8	35	-14.2
House1-FF	35.2	38.2	23.2	35	-11.8
House 2	33.2	36.2	21.2	35	-13.8
House 2-FF	33.6	36.6	21.6	35	-13.4
House 3	33.3	36.3	21.3	35	-13.7
House 3-FF	33.6	36.6	21.6	35	-13.4
House 3	32.4	35.4	20.4	35	-14.6
House 3-FF	32.8	35.8	20.8	35	-14.2
House 5	32.5	35.5	20.5	35	-14.5
House 5-FF	33	36	21	35	-14

Table 1. Predicted Sound Pressure Levels at Residential Properties.

From Table 1 above, it is apparent that the received specific noise levels from the plant are predicted to be significantly below those expected for internal residential sound levels which are measured across a 16-hour day, ie 07:00-23:00 hours. If an on-time adjustment were to be made to account for the fact that these might only operate for 3 hours during a 16-hour day, the predicted sound levels would be reduced further still.

Potential Future Housing.

It is noted from the Havant Planning Website that there could be additional residential housing to the East of 15 Lower Road, as seen in Figure 5 below.



Figure 5. Proposed Additional Residential Housing

Accordingly, the closest residential property (plot 26), measured as approximately 84m to the East was also constructed and assessed within the computer noise modelling process for both ground floor and first floor West facing windows. The results are seen in Table 2 below and show again that the sound levels generated as a result of the concrete operation are not likely to adversely impact internal sound levels, with windows open.

Property	Predicted $L_{Aeq, 1 \text{ hour}}$, dB	Façade Correction (+3dB)	dB losses through an open window (-15dB)	BS8233:2014 daytime 16 hour level	Difference
Plot 26 - Ground Floor	32.4	35.4	20.4	35 dB $L_{Aeq, 16 \text{ Hour}}$	-14.6
Plot 26 - First Floor	32.8	35.8	20.8	36 dB $L_{Aeq, 16 \text{ Hour}}$	-14.2

Table 2. Proposed New Properties to East.

Context and Discussion

The site (15 Lower Road) has been operating in the same capacity for the last 3 years without any complaints received. There are only two pieces of noise plant involved in the process and operations occur internally and with the doors closed for short periods of time for one in every three days, due to the time taken for the finished products to dry off and be removed from the moulds. The process occurs only during the daytime without any manufacture operations at the weekends.

Whilst Tables 1 and 2 contain predicted sound levels, two one-minute measurements were made at 2.6m from the North façade of 15 Lower Road. The measurements were made without any plant being operated. These identified that the soundscape without any contribution from concrete manufacture, and only road traffic noise was already 55.6dB $L_{Aeq, 1 \text{ minute}}$.

To ensure a robust assessment, the noise modelling software was also run to account for potential future housing to the East to determine what, if any, impact was likely to result from the operations carried out at 15 Lower Road. It is concluded that the sound levels predicted as a result of the modelling software are not likely to have any adverse impact on either current or future residential properties, due to both the low levels being generated and the already noisy soundscape from road traffic noise.

In terms of future proofing, it is also understood that the B2 use will be tied to the current company and operators to prevent the site suddenly able to become a more industrial and noisier B2 use.

Summary

From the predictions made, and subjective observations on site, the manufacture of concrete moulds, which is deemed to be a B2 operation, is capable of being conducted without adverse impact to local residential properties which are located to the North and East of the site and potential new residential properties, also East of the site. The concrete mould manufacture is carried out internally and results in predicted sound pressure levels inside residential properties well below those required for daytime levels in BS8233:2014 or WHO Guidelines for Community Noise dated 1999.

The dominant noise heard on site is that of the A27 and A3(M) road traffic noise which is heard uniformly across the site. The noise impact of the concrete mould operation is not deemed to be a problem and accordingly, may be regularised through the planning process.

I trust that the above is useful and please do not hesitate in contacting me should you have any questions or queries.

Your sincerely



Scott Castle

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