Your ref
Our ref 239802-07/NH
File ref

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20 November 2017

Dear Michelle

Fleming Park Energy Centre
Summary of Measured Noise Emissions from Energy Centre

This letter sets out the measurements made by Arup on 14th November regarding noise emissions from the Energy Centre. The aim of this letter is to summarise the relevant planning conditions, proposed noise limits and measurements of in-situ noise emissions, to allow the Local Planning Authority to decide whether the planning conditions regarding noise can be discharged or not.

Planning noise limit

We wrote a noise assessment for the leisure centre and Energy Centre in March 2016. This report set limits for noise emissions from the Energy Centre to the nearest noise sensitive receptor, the Holiday Inn, as agreed with the Environmental Health Officer at Eastleigh Borough Council. The proposed limit for noise from the Energy Centre at the Holiday Inn was 35dBL_{Aeq}, which is 10dB below the typical daytime / evening noise level. This was included in the planning application for the overall site, and specifically included in the application documents for the Energy Centre, which was granted permission in October 2016. To make it easily assessed, we also set a noise limit close to the Energy Centre that would ensure that the noise limit at the Holiday Inn is met. This limit is 83dBL_{Aeq} at 1m from the Energy Centre. Provided this noise level is not exceeded when the equipment is operating, it is considered to be adequately controlled and in line with the proposed planning noise limit.

Planning conditions relating to noise

The Planning Conditions attached to the decision notice for the Energy Centre include conditions 7 and 8, which state:

> (7) The combined level of break-out of noise from the Combined Heat and Power engine, boilers, pumps, and ancillary equipment (including any associated plant, machinery and/or equipment) shall not exceed agreed sound levels. These levels shall be agreed prior to the commencement of operation and determined at free field locations to be agreed with the Local Planning Authority. Reason: To protect the area from noise.

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(8) The development hereby approved shall not be brought into operation until a noise assessment scheme that demonstrates that the installed plant and equipment complies with the agreed combine level of break-out noise has been submitted to and agreed in writing by the Local Planning Authority. Reason: To protect the area from noise.

Desk study of noise emissions (to check that the design meets the planning noise limit)

We wrote to you in February 2017 to summarise the conclusions of our noise assessment of the proposed equipment in the Energy Centre. This confirmed that the noise emissions from the Energy Centre were expected to comply with the proposed noise limit set at planning stage. I believe that you forwarded this assessment to the EHO at the time.

Measurements of in-situ noise emissions from the Energy Centre

On 14th November we met on-site during the evening to listen to and measure noise from the Energy Centre. The system operator was also in attendance to ensure that the equipment was operating at the correct duty, to represent a typical worst case. During the evening period, ambient noise levels are lower than during the day, which is why we chose this time period to assess on-site noise emissions.

We simulated load on the CHP and boilers and measured noise levels close to the Energy Centre, together with background noise levels to allow corrections if necessary.

The tests were carried out under the following conditions:

- CHP operating at typical maximum duty (generating 240kW)
- Boilers operating (separate test to the CHP operation)
- Energy Centre louvred doors closed
- Typical activity in surrounding areas (including exercise classes within the existing leisure centre), use of the car park adjacent to the Energy Centre and distant traffic noise from the motorway.

The measured noise levels are given below. These were all measured approximately 1m from the façade of the Energy Centre.

Condition	**Measured noise level, dBL$_{Aeq}$**	**Comments**
Background noise level	51	Dominant noise is from extract fans serving the existing leisure centre Other noise sources include: - Traffic noise (Passfield Avenue and M3 to the west) - Noise from pedestrians using the car park. - Some music noise from classes in the leisure centre (barely audible)

Condition	Measured noise level, dBL_{Aeq}	Comments
CHP operating	58	Dominant noise is from extract fans serving the existing leisure centre. Noise from the operating CHP is also clearly audible. Other noise sources as above.
Boiler operating	51	Noise from the operating boilers not audible.

Comparing the noise emissions when the equipment is running with the proposed noise limit of $83dBL_{Aeq}$ at 1m from the Energy Centre, the noise emissions from the Energy Centre are well within the planning noise limit.

Subjective impressions

We walked around the installation when the equipment was in operation. The building has louvred air intakes, through which noise is more audible than on other façades. We could not clearly identify noise from the flue above the background noise level. At 1m from the building, we measured worst case noise emissions, close to the air intake louvres.

At the Holiday Inn, we were unable to identify noise from the Energy Centre.

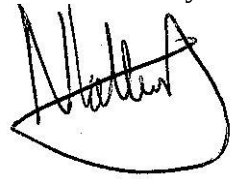
Conclusions

The conclusions of the measurement survey are as follows:

- Noise from the Energy Centre was not clearly identifiable at the nearest noise sensitive receptor, the Holiday Inn, during the evening period, when the equipment was operating at a typical worst case level.
- Noise from the Energy Centre, when measured close by was below the noise limit, suggesting that the noise emissions are controlled to well within the noise limit proposed at planning stage. This is in line with the predictions made during the desk study.
- On this basis, we would expect that the LPA can form a decision regarding the planning conditions regarding noise control. No further noise attenuation works are expected to be justifiable.

I trust that this sets out our findings clearly. Please feel free to forward this letter to the EHO (Neil Scott / Stuart Wedgebury) at Eastleigh Borough Council for their comments.

Yours sincerely



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