Memo

Project: National Paediatric Hospital

Report Type: Summary of Noise and Vibration Monitoring Results

Period of Monitoring: Sensor data 2nd September – 29th September 2017

Introduction

Contained within the project documents for the National Paediatric Hospital development are requirements for Environmental Monitoring to be completed during construction works. This monitoring regime includes recording dust deposition, noise at the perimeter of the site, and ground vibration at the perimeter of the site. Permissible limits for each monitoring regime have been set out in the Project EIS which was submitted with the Planning Permission for the Hospital.

The number of Monitoring points will vary throughout the project depending on the construction works being undertaken. Additional monitoring points may be added if particular features of adjacent properties require it.

Vibration Monitoring.

Vibration monitor sensors will be located at the perimeter of the site in locations where significant works are ongoing on site.

The Project Environmental Impact Statement (EIS) that was part of the project Planning Permission established vibration limit at structures depending on their condition and type. Please see tables below for the limits set.

Table 11.7: Allowable vibration during construction phase for soundly constructed buildings

Allowable vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration, at a frequency of		
Less than 10Hz	**10 to 50Hz**	**50 to 100Hz (and above)**
15 mm/s	20 mm/s	50 mm/s

Table 11.8: Allowable vibration during construction phase for sensitive buildings

Allowable vibration (in terms of peak particle velocity) at the closest part of sensitive property to the source of vibration, at a frequency of		
Less than 10Hz	**10 to 50Hz**	**50 to 100Hz (and above)**
3 mm/s	3 – 8 mm/s	8 – 10 mm/s

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Site operations are monitored using a traffic light trigger system of Green, Amber and Red trigger levels with the Red trigger level set at a vibration limit of 3mm/s PPV which corresponds to the lowest permissible vibration limit for sensitive structures. Any vibration level recorded below Red levels is acceptable within the limits established in Planning.

Number of Monitors on Site:

During the monitoring period summarised for this report (2nd to 29th September 2017) there were up to 8 active vibration monitors installed at the perimeter of the site.

Location of Vibration Monitors:

Location of Vibration Monitors

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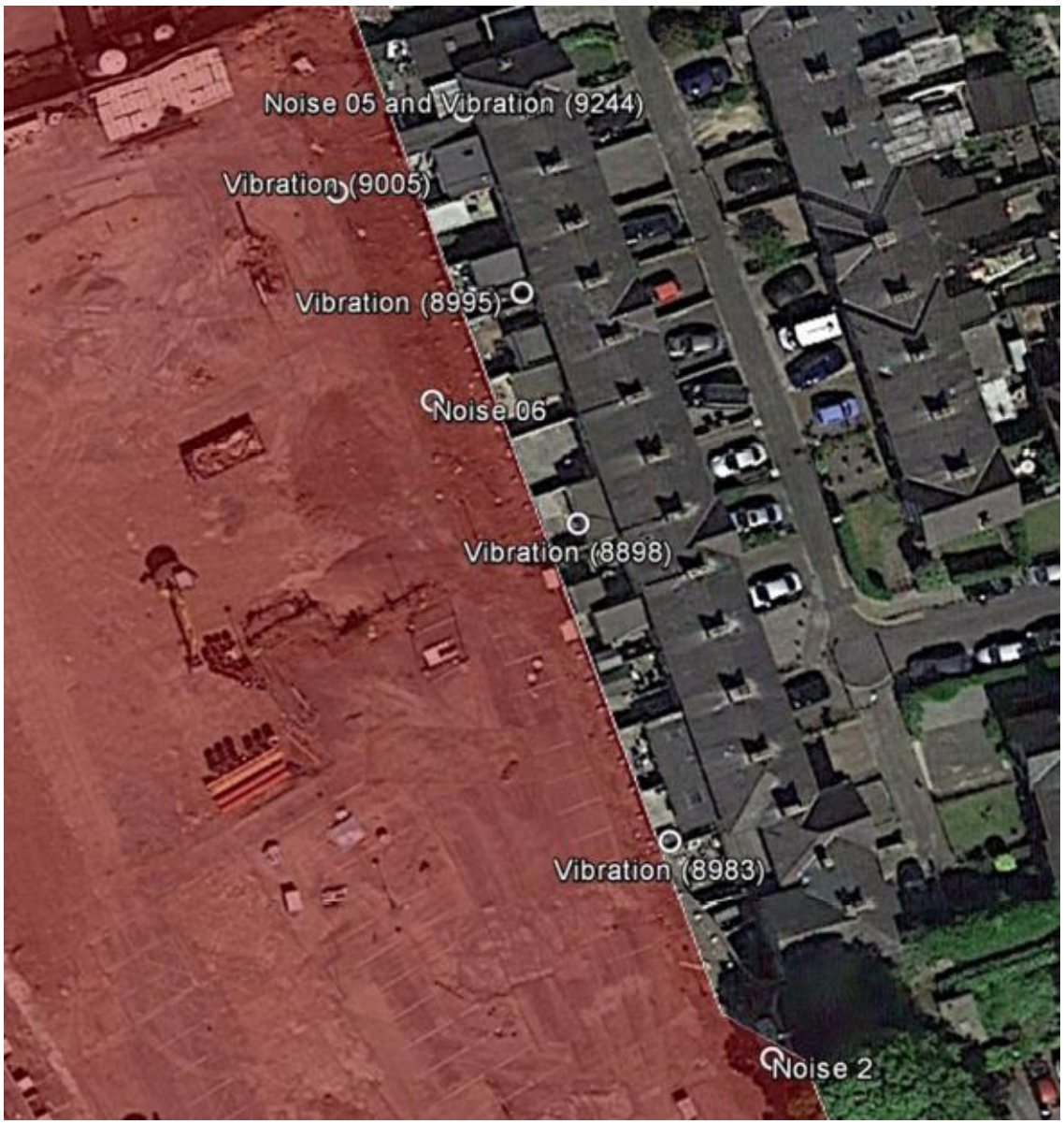
Location of Vibration Monitors:



Location of Vibration Monitors

Observations:

Executive Summary:

All vibration readings recorded below the limit specified within the Project EIS

Detailed Summary:

Sensor 01 (8939)

- All vibration readings recorded below the limit specified within the Project EIS

Sensor 02 (8983)

- All vibration readings recorded below the limit specified within the Project EIS

Sensor 02A (8898)

- All vibration readings recorded below the limit specified within the Project EIS

Sensor 02C (8995)

- All vibration readings recorded below the limit specified within the Project EIS

Sensor 03 (9133)

- All vibration readings recorded below the limit specified within the Project EIS

Sensor 04 (8681)

- All vibration readings recorded below the limit specified within the Project EIS

Sensor 05 (9244)

- All vibration readings recorded below the limit specified within the Project EIS

Sensor (9141)

- All vibration readings recorded below the limit specified within the Project EIS

Noise Monitoring.

Noise monitor sensors will be located at the perimeter of the site in locations where significant works are ongoing on site. When works are ongoing the noise monitor sensors run continuously and readings are recorded in decibels (dB) LA_{eq1hr}. Decibels is the standard unit of measurement of sound energy and 'LA_{eq1hr}' means that sensors record all levels of sound over a 1 hour period and then calculate an average equivalent decibel level as if the sound was continuous. Isolated instantaneous loud noises are thus averaged out.

The Project Environmental Impact Statement (EIS) that was part of the project Planning Permission established a noise limit at residential dwellings of 70dB LA_{eq1hr}. Site operations are monitored using a traffic light trigger system of Green, Amber and Red trigger levels with the Red trigger level set at the noise limit set out in the project EIS (70 dB LA_{eq1hr}.). Any noise level recorded below Red levels is acceptable within the limits established in Planning.

Number of Noise Monitors on Site:

During the monitoring period (2nd to 29th September 2017) summarised for this report there were up to 6 active monitors at the site boundaries. Monitor 01, 02, 03, 04, 05, and 06 (shown on the map view below) have recorded results.

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Location of Noise Monitors:

Location of Noise Monitors

Observations:

Executive Summary:

Noise Monitor 01 has recorded noise levels above those set out in the Project EIS on 4 separate days but it has been noted that the monitor is located on the site side of the hoarding that is in place to mitigate against noise transmission outside the boundary.

Noise Monitor 02 has recorded noise levels above those set out in the Project EIS on 7 separate days but it has been noted that the monitor is located on the site side of the hoarding that is in place to mitigate against noise transmission outside the boundary.

Noise Monitor 03 has recorded noise levels above those set out in the Project EIS on 4 separate days but it has been advised that BAM are investigating if levels of background / ambient noise are contributing to the levels recorded.

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Detailed Summary:

The monitoring results for noise for this period were within the limits set out in the Project EIS with the following exceptions:

4th September:

- Noise Monitor 05 recorded levels above those set out in the Project EIS with a peak of 73dB LA_{eq1hr}.

5th September:

- Noise Monitor 05 recorded levels above those set out in the Project EIS with a peak of 73dB LA_{eq1hr}.

6th September:

- Noise Monitor 05 recorded levels above those set out in the Project EIS with a peak of 74dB LA_{eq1hr}.

7th September:

- Noise Monitor 01 recorded levels above those set out in the Project EIS with a peak of 81dB LA_{eq1hr}. It has been noted that Noise Monitor 01 has been located on the site side of the hoarding and as such is recording noise levels within rather than outside the site boundary.
- Noise Monitor 03 recorded levels above those set out in the Project EIS with a peak of 78dB LA_{eq1hr}. BAM to review location of Noise Monitor 3 as this monitor may be subjected to background noise that contributes to the readings taken at this location.

8th September:

- Noise Monitor 03 recorded levels above those set out in the Project EIS with a peak of 76dB LA_{eq1hr}. BAM to review location of Noise Monitor 3 as this monitor may be subjected to background noise that contributes to the readings taken at this location.

12th September:

- Noise Monitor 03 recorded levels above those set out in the Project EIS with a peak of 75dB LA_{eq1hr}. BAM to review location of Noise Monitor 3 as this monitor may be subjected to background noise that contributes to the readings taken at this location.

13th September:

- Noise Monitor 02 recorded levels above those set out in the Project EIS with a peak of 74dB LA_{eq1hr}. It has been noted that Noise Monitor 02 has been located on the site side of the hoarding and as such is recording noise levels within rather than outside the site boundary.
- Noise Monitor 03 recorded levels above those set out in the Project EIS with a peak of 73dB LA_{eq1hr}. BAM to review location of Noise Monitor 3 as this monitor may be subjected to background noise that contributes to the readings taken at this location.

14th September:

- Noise Monitor 02 recorded levels above those set out in the Project EIS with a peak of 75dB LA_{eq1hr}. It has been noted that Noise Monitor 02 has been located on the site side of the hoarding and as such is recording noise levels within rather than outside the site boundary.

- Noise Monitor 05 recorded levels above those set out in the Project EIS with a peak of 72dB LA_{eq1hr}.

19th September:

- Noise Monitor 01 recorded levels above those set out in the Project EIS with a peak of 74dB LA_{eq1hr}. It has been noted that Noise Monitor 01 has been located on the site side of the hoarding and as such is recording noise levels within rather than outside the site boundary.

20th September:

- Noise Monitor 01 recorded levels above those set out in the Project EIS with a peak of 74dB LA_{eq1hr}. It has been noted that Noise Monitor 01 has been located on the site side of the hoarding and as such is recording noise levels within rather than outside the site boundary.
- Noise Monitor 02 recorded levels above those set out in the Project EIS with a peak of 77dB LA_{eq1hr}. It has been noted that Noise Monitor 02 has been located on the site side of the hoarding and as such is recording noise levels within rather than outside the site boundary.
- Noise Monitor 05 recorded levels above those set out in the Project EIS with a peak of 75dB LA_{eq1hr}.

21st September:

- Noise Monitor 02 recorded levels above those set out in the Project EIS with a peak of 80dB LA_{eq1hr}. It has been noted that Noise Monitor 02 has been located on the site side of the hoarding and as such is recording noise levels within rather than outside the site boundary.
- Noise Monitor 06 recorded levels above those set out in the Project EIS with a peak of 71dB LA_{eq1hr}.

22nd September:

- Noise Monitor 01 recorded levels above those set out in the Project EIS with a peak of 72dB LA_{eq1hr}. It has been noted that Noise Monitor 01 has been located on the site side of the hoarding and as such is recording noise levels within rather than outside the site boundary.
- Noise Monitor 02 recorded levels above those set out in the Project EIS with a peak of 72dB LA_{eq1hr}. It has been noted that Noise Monitor 02 has been located on the site side of the hoarding and as such is recording noise levels within rather than outside the site boundary.
- Noise Monitor 05 recorded levels above those set out in the Project EIS with a peak of 80dB LA_{eq1hr}.
- Noise Monitor 06 recorded levels above those set out in the Project EIS with a peak of 76dB LA_{eq1hr}.

25th September:

- Noise Monitor 02 recorded levels above those set out in the Project EIS with a peak of 72dB LA_{eq1hr}. It has been noted that Noise Monitor 02 has been located on the site side of the hoarding and as such is recording noise levels within rather than outside the site boundary.

27th September:

- Noise Monitor 06 recorded levels above those set out in the Project EIS with a peak of 72dB LA_{eq1hr}.

28th September:

- Noise Monitor 02 recorded levels above those set out in the Project EIS with a peak of 72dB LA_{eq1hr}. It has been noted that Noise Monitor 02 has been located on the site side of the hoarding and as such is recording noise levels within rather than outside the site boundary.

Noise Monitor 04 is located at Mount Brown and during the monitoring period no works were ongoing. The background noise level due to road traffic commonly reaches 73dB LA_{eq1hr} during the day with occasional peaks of 76 dB LA_{eq1hr}. The baseline value for permitted noise at this point may have be adjusted.