

# Memo

**Project:** National Paediatric Hospital

**Report Type:** Summary of Noise and Vibration Monitoring Results

**Period of Monitoring:** Sensor data 5<sup>th</sup> July – 02<sup>nd</sup> August 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

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

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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 (5<sup>th</sup> July to 02<sup>nd</sup> August 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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## Observations:

### Executive Summary:

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

### Detailed Summary:

#### Sensor (9146)

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

#### Sensor (9244)

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

#### Sensor (8681)

- 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

#### Sensor (8898)

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

#### Sensor (8939)

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

#### Sensor (8995)

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

#### Sensor (8983)

- 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.

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## Number of Noise Monitors on Site:

During the monitoring period (5<sup>th</sup> July to 02<sup>nd</sup> August 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.

## Location of Noise Monitors:



Location of Noise Monitors

## Observations:

### Executive Summary:

Noise Monitor 02 has recorded noise levels above those set out in the Project EIS on 2 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: BAM to review location of Noise Monitor 03 as no construction works were taking place in this area however 8 number exceedances possibly due to background / ambient noise.

### Detailed Summary:

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

### 5<sup>th</sup> July:

- Noise Monitor 03 recorded levels above those set out in the Project EIS with a peak of 77dB LA<sub>eq1hr</sub>. 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.

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## 8<sup>th</sup> July:

- 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.

## 12<sup>th</sup> July:

- Noise Monitor 05 recorded levels above those set out in the Project EIS with a peak of 71dB  $LA_{eq1hr}$ .
- Noise Monitor 06 recorded levels above those set out in the Project EIS with a peak of 71dB  $LA_{eq1hr}$ .

## 14<sup>th</sup> July:

- Noise Monitor 02 recorded levels above those set out in the Project EIS with a peak of 71dB  $LA_{eq1hr}$ . 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.

## 17<sup>th</sup> July:

- 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.

## 20<sup>th</sup> July:

- Noise Monitor 03 recorded levels above those set out in the Project EIS with a peak of 83dB  $LA_{eq1hr}$ . 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.

## 24<sup>th</sup> July:

- Noise Monitor 03 recorded levels above those set out in the Project EIS with a peak of 72dB  $LA_{eq1hr}$ . 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.
- Noise Monitor 04 recorded levels above those set out in the Project EIS with a peak of 84dB  $LA_{eq1hr}$ . BAM report there were no BAM activities taking place in this area during on this day.

## 27<sup>th</sup> July:

- 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.

## 28<sup>th</sup> July:

- Noise Monitor 03 recorded levels above those set out in the Project EIS with a peak of 72dB  $LA_{eq1hr}$ . 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.

## 31<sup>st</sup> July:

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- 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.
- Noise Monitor 04 recorded levels above those set out in the Project EIS with a peak of 71dB  $LA_{eq1hr}$ .

## 1<sup>st</sup> August:

- Noise Monitor 03 recorded levels above those set out in the Project EIS with a peak of 72dB  $LA_{eq1hr}$ . 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.