Memo

Project: National Paediatric Hospital

Report Type: Summary of Noise Vibration & Movement Monitoring Results

Period of Monitoring: Sensor data 2nd July 2018 – 30th July 2018

Introduction

Contained within the project documents for the National Children's 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.

Works on site during this monitoring period include, but are not limited to:

- Construction and fitout of the utility tunnel, construction of diversion road near O'Reilly Avenue
- Excavation of materials and construction of basement slab at the hospital entrance.
- Piling, pile cropping and anchoring near Cameron Square.
- Pile anchoring and piling near South Circular Road.
- Excavation of materials from site and pile cropping near mount brown.

Vibration Monitoring.

Vibration monitors have been located at the 'closest part of sensitive property' as per the Project Environmental Impact Statement where feasible or alternatively at the site hoarding. The monitors will be located as per the above adjacent to 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 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 July 2018 – 30th July 2018) there were up to 16 active vibration monitors installed at the perimeter of the site.

Location of Vibration and Noise Monitors:

The layout of the monitors is as seen below:

Location of Vibration Monitors

There are concentrations of monitors at the boundaries with Cameron Square and O'Reilly Avenue where works have been ongoing on site in proximity to neighbouring properties.

Memo

Location of Noise Monitors near O'Reilly Avenue

Observations:

Executive Summary:

Vibration monitors have been placed at the 'closest part of the sensitive properties' as per the EIS where this is feasible. The majority of vibration readings during the monitoring period recorded readings below the limit specified within the Project EIS. Vibration monitors V1, V13, V18, A1 & A2 have been excluded from this report as they are not relevant to the conditions for the residents adjacent to the site. From the remaining 11 monitors:

- 3 number monitors recorded readings above the limit specified within the Project EIS.
- 2 number monitors were offline for portions of the monitoring period and are noted below.

Detailed Summary:

Sensor (V2 – 9750) (Previously numbered 9144) (Rialto Luas)

- Vibrations above the limit specified within the project EIS were recorded on the following dates: 10th & 11th of July 2018.
- Sensor failed to take readings on the following dates 16th, 17th, 18th, 19th, 20th, 21st, 22nd & 23rd July 2018 inclusive.
- The vibration report states the cause of these triggers as "*workers disturbing the Kelly block [which is supporting the sensor] by storing wood on it."*

Memo

Sensor (V3 – 8838) (South Circular Road)

- Vibrations above the limit specified within the project EIS were recorded on the following dates: 16th & 27th of July 2018.
- The vibration report states the cause of these readings were *"caused by an accidental knock"*.

Sensor (V5 – 9155) (Cameron Square)

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

Sensor (V6 - 9736) (Cameron Square)

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

Sensor (V7 - 8681) (Old Kilmainham Road)

- Vibrations above the limit specified within the project EIS were recorded on the following dates: 13th & 19th of July 2018.
- The vibration report states the cause of these readings as *"caused by an accidental knock taking place in the property as there was no works taking place at the location of the monitor".*

Sensor (V8 - 3485) (Brookfield Clinic)

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

Sensor (V9 – 8995) (O'Reilly Avenue)

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

Sensor (V10 – 8939) (Previously numbered 8943) (O'Reilly Avenue)

- All vibration readings recorded vibrations below the limit specified within the Project EIS.
- Sensor failed to take readings on the following dates: 23rd, 24th, 25th, 26th, 27th, 28th, 29th & 30th July 2018 inclusive.

Sensor (V11 – 8983) (Previously numbered 9461) (O'Reilly Avenue)

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

Sensor (V12 3252) (O'Reilly Avenue)

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

Sensor (V14 - 9737) (Mount Shannon)

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

Memo

Noise Monitoring.

During the report period noise monitors have been placed at the 'closest part of sensitive property' as per the Project EIS where this has been feasible, or alternatively to the outside face of the site hoarding. 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 July 2018 – 30th July 2018) summarised for this report there were up to 15 active monitors at the site boundaries.

Observations:

Executive Summary:

Noise monitors 07, 08, 15 & 16 have been excluded from this report as they are not relevant to the conditions for the residents adjacent to the site. From the remaining 11 monitors:

- 8 number monitors recorded readings above the limit specified within the Project EIS.
- 2 number monitor was offline for portions of the monitoring period and are noted below.

Detailed Summary:

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

Monitor 01 (Cameron Square)

- Noise levels above the limit specified within the Project EIS were recorded on the following dates: 5th, 9th, 10th, 11th, 12th, 16th, 17th, 18th & 21st July 2018. The highest noise recording was 80 dB LA_{eq1hr}.
- The noise reports state that the cause of theses readings were due to piling works.

Monitor 02 (O'Reilly Avenue)

- Noise levels above the limit specified within the Project EIS were recorded on the following dates: 16th & 18th July 2018. The highest noise recording was 74 dB LA_{eq1hr}.
- The noise reports state that the cause of the readings above 70 dB LA_{eq1hr} were "*caused by works on the temporary road"* and *"water mains connection works".*

Monitor 04 (Mount Brown Road)

- The background noise readings for this sensor outside of construction hours are consistently above the normal limit of 70 dB LA_{eq1hr}. An alternate limit of 80 dB LA_{eq1hr} was chosen for this location.
- A noise reading was recorded at noise levels above the alternate limit chosen for this location on the following dates: 11th & 13th July 2018. The highest noise recording was above 80 dB LA_{eq1hr}.
- The noise reports state that *"ambient traffic"* were the cause of this readings.

Monitor 05 (O'Reilly Avenue)

- Sensor failed to take readings on the following dates: 10th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 21st, 22nd, 23rd, 24th, 25th, 26th, 27th, 28th, 29th & 30th July 2018.
- All noise readings recorded noise levels below the limit specified within the Project EIS.

Monitor 06 (O'Reilly Avenue)

- Noise levels above the limit specified within the Project EIS were recorded on the following dates: 18th July 2018. The highest noise recording was 70 dB LA_{eq1hr}.
- The noise reports do not state the cause of this reading.

Monitor 09 (Rialto LUAS)

- Noise levels above those specified in the project EIS were recorded on the 2nd, 3rd, 5th, 9th , 10th, 13th, 15th, 16th, 17th, 18th, 19th, 20th, 23rd, 24th, 25th, 26th, 28th & 29th of July 2018. The highest noise recording was 78 dB LA_{eq1hr}.
- The noise reports state that these readings were caused by a combination of excavation works and ambient noise from the Luas.

Monitor 10 (Brookfield Clinic)

- All noise readings recorded noise levels below the limit specified within the Project EIS.

Monitor 11 (Cameron Square)

- Noise levels above the limit specified within the Project EIS were recorded on the following dates: 5th, 9th, 10th, 11th & 13th July 2018. The highest noise recording was 77 dB LA_{eq1hr}.
- The noise reports state that excavation works were the cause of this readings.

Monitor 12 (Cameron Square)

- Noise levels above the limit specified within the Project EIS were recorded on the following dates: 2nd, 5th, 9th & 13th July 2018. The highest noise recording was 73 dB LA_{eq1hr}.
- The noise reports state that excavation works were the cause of this readings.

Monitor 13 (O'Reilly Avenue)

- All noise readings recorded noise levels below the limit specified within the Project EIS.

Monitor 14 (Mount Shannon Road)

- Noise levels above the limit specified within the Project EIS were recorded on the following dates: 2nd, 3rd, 4th, 5th, 6th, 7th, 8th, 9th, 10th, 11th, 12th, 13th, 14th, 15th, 16th, 17th, 18th, 19th, 20th, 23rd, 24th, 25th, 26th, 27th & 28th July 2018. The highest noise recording was 75 dB LA_{eq1hr}.
- The sensor failed to take readings on the following dates: 20th, 21st, 22nd, 23rd, 28th & 29th July 2018.
- The noise reports state that these readings were caused by a combination of excavation works and ambient noise from traffic.

Memo

AMS/ATS Monitoring.

During the report period geodetic monitors have been placed across several properties. These monitors take the form of Prisms fixed to individual properties. These prisms are accurately surveyed / monitored for position on a continuous basis to identify any potential building movement.

The limits identified in the detailed reports can be seen below:

Instrumentation	Green Trigger Level	Amber Trigger Level	Red Trigger Level
Measurement of Ground Movements.			
Vertical:	0-3mm	4-9mm	10mm
Horizontal:	0-2mm	3-5mm	6mm
Measurement of Building Movements:	0-1mm	1-2mm	2-3mm

Below is a summary of each of the sensors and the readings of the prisms which they monitor. Sensors monitor on a continuous basis and only readings which have exceeded the limited above have been shown.

Monitor A03: Mount Shannon

None of the 4 prisms in this area surveyed by Monitor A03 which recorded triggers during this monitoring period.

Memo

Monitor A04: South Circular Road

There were 7 of the 16 prisms in this area surveyed by Monitor A04 which recorded triggers during this monitoring period.

Sensor M497M02-S-A04 recorded 3 triggers on the following dates:

19-Jul-18	Green-Amber-Green
26-Jul-18	Amber-Green
27-Jul-18	Green-Amber-Green

Sensor M501M04-S-A04 recorded 3 triggers on the following dates:

16-Jul-18	Green-Amber-Green
19-Jul-18	Green-Amber-Green
22-Jul-18	Green-Amber-Green

Sensor M505M09-S-A04 recorded 6 triggers on the following dates:

05-Jul-18	Green-Amber-Green
24-Jul-18	Amber-Green-Amber
25-Jul-18	Amber-Green
26-Jul-18	Amber-Green
27-Jul-18	Green-Amber
28-Jul-18	Amber-Green

Sensor M507M11-S-A04 recorded 17 triggers on the following dates:

02-Jul-18	Amber-Green-Amber-Green
03-Jul-18	Green-Amber
04-Jul-18	Amber-Green-Amber-Green
05-Jul-18	Green-Amber-Green
07-Jul-18	Green-Amber-Green
11-Jul-18	Amber-Green
12-Jul-18	Green-Amber-Green-Amber
13-Jul-18	Amber-Green-Amber-Green
14-Jul-18	Green-Amber
18-Jul-18	Amber-Green-Amber
19-Jul-18	Green-Amber-Green
21-Jul-18	Amber-Green
22-Jul-18	Green-Amber
24-Jul-18	Amber-Green-Amber
25-Jul-18	Amber-Green-Amber
28-Jul-18	Amber-Green-Amber
29-Jul-18	Amber-Green

Memo

Sensor M578M02-S-A04 recorded 11 triggers on the following dates:

02-Jul-18	Green-Amber
03-Jul-18	Amber-Green-Amber
04-Jul-18	Amber-Green-Amber
05-Jul-18	Amber-Green-Amber
06-Jul-18	Amber-Green
07-Jul-18	Green-Amber-Green
10-Jul-18	Green-Amber-Green
19-Jul-18	Green-Amber-Green
24-Jul-18	Green-Amber
25-Jul-18	Amber-Green
27-Jul-18	Green-Amber-Green

Sensor M590M01-S-A04 recorded 2 triggers on the following dates:

03-Jul-18	Green-Amber
28-Jul-18	Green-Amber

Sensor M592M02-S-A04 recorded 9 triggers on the following dates:

02-Jul-18	Amber-Green
04-Jul-18	Green-Amber-Green
05-Jul-18	Amber-Green-Amber
11-Jul-18	Green-Amber
17-Jul-18	Green-Amber-Green
21-Jul-18	Green-Amber-Green
22-Jul-18	Green-Amber-Green
23-Jul-18	Green-Amber-Green-Amber
24-Jul-18	Amber-Green

Monitor A05: Brookfield Clinic

There were 2 of the 7 prisms in this area surveyed by Monitor A05 which recorded triggers during this monitoring period.

Sensor M12M10-S-A05 recorded 1 trigger on the following dates:

14-Jul-18	Green-Amber-Green

Sensor M16M11-S-A05 recorded 1 trigger on the following dates:

23-Jul-18	Amber-Green

Memo

Monitor A06 & A07: Cameron Square

There were 6 of the 22 prisms in this area surveyed by Monitors A06 and A07 which recorded triggers during this monitoring period.

Sensor M22M01-S-A07 recorded 12 triggers on the following dates:

12-Jul-18	Green-Amber
13-Jul-18	Amber-Green
14-Jul-18	Green-Amber-Green-Amber
16-Jul-18	Amber-Green
17-Jul-18	Green-Amber-Green
18-Jul-18	Green-Amber
20-Jul-18	Amber-Green
21-Jul-18	Green-Amber-Green
22-Jul-18	Green-Amber-Green
23-Jul-18	Green-Amber-Green-Amber
24-Jul-18	Amber-Green
25-Jul-18	Green-Amber

Sensor M22M02-S-A07 recorded 1 trigger on the following dates:

19-Jul-18	Green-Amber-Green

Sensor M23M01-S-A07 recorded 4 triggers on the following dates:

12-Jul-18	Green-Amber-Green
15-Jul-18	Green-Amber-Green
18-Jul-18	Green-Amber-Green
19-Jul-18	Green-Amber-Green

Sensor M27M01-S-A07 recorded 2 triggers on the following dates:

12-Jul-18	Green-Amber-Green
19-Jul-18	Green-Amber-Green

Sensor M31M01-S-A06 recorded 1 trigger on the following dates:

14-Jul-18	Green-Amber-Green

Sensor M35M02-S-A06 recorded 5 triggers on the following dates:

13-Jul-18	Amber-Green
14-Jul-18	Green-Amber-Green
18-Jul-18	Green-Amber-Green
20-Jul-18	Green-Amber-Green
27-Jul-18	Green-Amber-Green

Monitor A08&A09: Mount Brown

All 4 of the 4 prisms in this area surveyed by Monitors A08 and A09 which recorded triggers during this monitoring period.

Sensor M01M22-S-A09 recorded 1 trigger on the following dates:

05-Jul-18	Green-Amber-Green

Sensor M03M21-S-A09 recorded 2 triggers on the following dates:

03-Jul-18	Amber-Green
04-Jul-18	Green-Amber-Green

Sensor M06M19-S-A09 recorded 17 triggers on the following dates:

02-Jul-18	Green-Amber-Green
04-Jul-18	Green-Amber-Green
05-Jul-18	Green-Amber-Green
12-Jul-18	Green-Amber-Green
13-Jul-18	Green-Amber-Green
14-Jul-18	Green-Amber
15-Jul-18	Amber-Green
16-Jul-18	Green-Amber-Green
17-Jul-18	Green-Amber-Green
18-Jul-18	Green-Amber-Green
19-Jul-18	Green-Amber-Green
20-Jul-18	Green-Amber-Green
21-Jul-18	Green-Amber-Green

22-Jul-18	Green-Amber-Green
23-Jul-18	Green-Amber-Green
24-Jul-18	Green-Amber-Green
25-Jul-18	Green-Amber

Sensor M22M18-S-A09 recorded 17 triggers on the following dates:

02-Jul-18	Green-Amber-Green
05-Jul-18	Green-Amber-Green
12-Jul-18	Green-Amber-Green
13-Jul-18	Green-Amber-Green
14-Jul-18	Green-Amber
15-Jul-18	Amber-Green-Amber-Green
16-Jul-18	Green-Amber-Green
17-Jul-18	Green-Amber-Green
18-Jul-18	Green-Amber-Green
19-Jul-18	Green-Amber-Green
20-Jul-18	Green-Amber-Green
21-Jul-18	Green-Amber-Green
22-Jul-18	Green-Amber-Green
23-Jul-18	Green-Amber-Green
24-Jul-18	Green-Amber-Green
25-Jul-18	Green-Amber
28-Jul-18	Green-Amber-Green

Memo

Monitor A10: St. John's Terrace

Only 1 of the 3 prisms in this area surveyed by Monitors A10 which recorded triggers during this monitoring period.

Sensor M0304-S-A010 recorded 6 triggers on the following dates:

05-Jul-18	Green-Amber-Green
12-Jul-18	Green-Amber
13-Jul-18	Amber-Green-Amber
14-Jul-18	Amber-Green-Amber-Green
18-Jul-18	Green-Amber
19-Jul-18	Amber-Green-Amber

Monitor A011 & A012: O'Reilly Avenue

There were 39 of the 44 prisms in this area surveyed by Monitors A11 and A12 which recorded triggers during this monitoring period.

Sensor M061E01-S-A11 recorded 1 trigger on the following dates:

07-Jul-18	Green-Amber-Green

Sensor M064E03-S-A11 recorded 4 triggers on the following dates:

09-Jul-18	Green-Amber-Green
14-Jul-18	Green-Amber
15-Jul-18	Amber-Green
16-Jul-18	Green-Amber-Green

Sensor M065E02-S-A11 recorded 15 triggers on the following dates:

05-Jul-18	Green-Amber-Green
06-Jul-18	Green-Amber-Green
14-Jul-18	Green-Amber-Green-Amber
15-Jul-18	Amber-Green-Amber
16-Jul-18	Green-Amber-Green
17-Jul-18	Green-Amber
18-Jul-18	Amber-Green
19-Jul-18	Green-Amber
20-Jul-18	Amber-Green-Amber

21-Jul-18	Amber-Green
22-Jul-18	Green-Amber-Green-Amber
23-Jul-18	Green-Amber
24-Jul-18	Amber-Green
27-Jul-18	Green-Amber
28-Jul-18	Amber-Green-Amber

Sensor M065E03-S-A11 recorded 3 triggers on the following dates:

02-Jul-18	Green-Amber-Green
18-Jul-18	Green-Amber-Green
21-Jul-18	Green-Amber-Green

Sensor M067E01-S-A11 recorded 6 triggers on the following dates:

14-Jul-18	Green-Amber-Green-Amber
15-Jul-18	Amber-Green
23-Jul-18	Amber-Green
24-Jul-18	Green-Amber
25-Jul-18	Amber-Green-Amber
27-Jul-18	Green-Amber-Green

Sensor M068E02-S-A11 recorded 1 trigger on the following dates:

09-Jul-18	Amber-Green

Sensor M068M014B-S-A11 recorded 5 triggers on the following dates:

18-Jul-18	Amber-Green
20-Jul-18	Green-Amber
21-Jul-18	Amber-Green-Amber-Green
22-Jul-18	Green-Amber
28-Jul-18	Amber-Green-Amber-Green

Sensor M068E02-S-A11 recorded 1 trigger on the following dates:

08-Jul-18	Green-Amber-Green

Memo

Sensor M068E14A-S-A11 recorded 2 triggers on the following dates:

09-Jul-18	Amber-Green
14-Jul-18	Green-Amber-Green

Sensor M069E03R-S-A11 recorded 6 triggers on the following dates:

16-Jul-18	Green-Amber-Green
17-Jul-18	Green-Amber-Green-Amber
18-Jul-18	Amber-Green
20-Jul-18	Green-Amber-Green
23-Jul-18	Amber-Green
25-Jul-18	Green-Amber

Sensor M070E02R-S-A11 recorded 3 triggers on the following dates:

23-Jul-18	Green-Amber
24-Jul-18	Amber-Green
28-Jul-18	Green-Amber

Sensor M070E03R-S-A11 recorded 5 triggers on the following dates:

09-Jul-18	Amber-Green
26-Jul-18	Green-Amber
27-Jul-18	Amber-Green
28-Jul-18	Green-Amber
29-Jul-18	Amber-Green

Sensor M70M016-S-A11 recorded 6 triggers on the following dates:

14-Jul-18	Green-Amber-Green
16-Jul-18	Green-Amber-Green
20-Jul-18	Green-Amber-Green
23-Jul-18	Green-Amber-Green
24-Jul-18	Green-Amber-Green
25-Jul-18	Green-Amber

Memo

Sensor M070M17R-S-A11 recorded 7 triggers on the following dates

14-Jul-18	Green-Amber
15-Jul-18	Amber-Green
23-Jul-18	Amber-Green
25-Jul-18	Amber-Green-Amber
27-Jul-18	Green-Amber
28-Jul-18	Amber-Green-Amber
29-Jul-18	Amber-Green

Sensor M071E02R-S-A11 recorded 3 triggers on the following dates:

16-Jul-18	Green-Amber-Green
20-Jul-18	Green-Amber-Green
25-Jul-18	Green-Amber

Sensor M071E03R-S-A11 recorded 5 triggers on the following dates:

02-Jul-18	Green-Amber-Green
05-Jul-18	Green-Amber-Green
07-Jul-18	Green-Amber-Green
08-Jul-18	Green-Amber
25-Jul-18	Green-Amber

Sensor M072E01R-S-A11 recorded 12 triggers on the following dates:

07-Jul-18	Green-Amber-Green
08-Jul-18	Green-Amber
09-Jul-18	Amber-Green
14-Jul-18	Green-Amber
15-Jul-18	Amber-Green
16-Jul-18	Green-Amber-Green
20-Jul-18	Green-Amber-Green
22-Jul-18	Green-Amber

Memo

24-Jul-18	Amber-Green-Amber
25-Jul-18	Amber-Green-Amber
27-Jul-18	Green-Amber
28-Jul-18	Amber-Green-Amber

Sensor M072M18R-S-A11 recorded 1 trigger on the following dates:

25-Jul-18	Green-Amber-Green

Memo

Sensor M072M19R-S-A11 recorded 11 triggers on the following dates:

14-Jul-18	Green-Amber
15-Jul-18	Amber-Green
16-Jul-18	Green-Amber
17-Jul-18	Amber-Green-Amber
18-Jul-18	Amber-Green
20-Jul-18	Green-Amber
21-Jul-18	Amber-Green
22-Jul-18	Green-Amber
23-Jul-18	Amber-Green
24-Jul-18	Green-Amber
25-Jul-18	Amber-Green-Amber

Sensor M072E04R-S-A11 recorded 14 triggers on the following dates:

07-Jul-18	Green-Amber-Green
13-Jul-18	Green-Amber-Green
14-Jul-18	Green-Amber-Green-Amber
16-Jul-18	Amber-Green-Amber
17-Jul-18	Amber-Green-Amber
18-Jul-18	Amber-Green
20-Jul-18	Green-Amber
21-Jul-18	Amber-Green
22-Jul-18	Green-Amber-Green-Amber
24-Jul-18	Amber-Green-Amber
25-Jul-18	Amber-Green-Amber
27-Jul-18	Green-Amber
28-Jul-18	Amber-Green-Amber
29-Jul-18	Amber-Green

Memo

Sensor M075M17R-S-A11 recorded 6 triggers on the following dates:

16-Jul-18	Green-Amber-Green
17-Jul-18	Green-Amber-Green-Amber
18-Jul-18	Amber-Green
20-Jul-18	Green-Amber
21-Jul-18	Amber-Green
22-Jul-18	Green-Amber-Green-Amber

Sensor M59E01-S-A11 recorded 4 triggers on the following dates:

03-Jul-18	Green-Amber-Green
05-Jul-18	Green-Amber-Green
06-Jul-18	Green-Amber-Green
07-Jul-18	Green-Amber-Green

Sensor M16M11-S-A05 recorded 4 triggers on the following dates:

13-Jul-18	Green-Amber
15-Jul-18	Amber-Green-Amber
23-Jul-18	Amber-Green
24-Jul-18	Green-Amber

Sensor M75M026-S-A11 recorded 1 trigger on the following dates:

27-Jul-18	Amber-Green

Sensor M75M027-S-A11 recorded 1 trigger on the following dates:

16-Jul-18	Green-Amber-Green

Sensor M061E01-S-A11 recorded 1 trigger on the following dates:

07-Jul-18	Green-Amber-Green

Memo

Sensor M064E03-S-A11 recorded 4 triggers on the following dates:

09-Jul-18	Green-Amber-Green
14-Jul-18	Green-Amber
15-Jul-18	Amber-Green
16-Jul-18	Green-Amber-Green

Sensor M065E02-S-A11 recorded 15 triggers on the following dates:

05-Jul-18	Green-Amber-Green
06-Jul-18	Green-Amber-Green
14-Jul-18	Green-Amber-Green-Amber
15-Jul-18	Amber-Green-Amber
16-Jul-18	Green-Amber-Green
17-Jul-18	Green-Amber
18-Jul-18	Amber-Green
19-Jul-18	Green-Amber
20-Jul-18	Amber-Green-Amber
21-Jul-18	Amber-Green
22-Jul-18	Green-Amber-Green-Amber
23-Jul-18	Green-Amber
24-Jul-18	Amber-Green
27-Jul-18	Green-Amber
28-Jul-18	Amber-Green-Amber

Sensor M065E03-S-A11 recorded 3 triggers on the following dates:

02-Jul-18	Green-Amber-Green
18-Jul-18	Green-Amber-Green
21-Jul-18	Green-Amber-Green

Sensor M067E01-S-A11 recorded 6 triggers on the following dates:

14-Jul-18	Green-Amber-Green-Amber
15-Jul-18	Amber-Green

23-Jul-18	Amber-Green
24-Jul-18	Green-Amber
25-Jul-18	Amber-Green-Amber
27-Jul-18	Green-Amber-Green

Sensor M068E02-S-A11 recorded 1 trigger on the following dates:

09-Jul-18	Amber-Green

Sensor M068M014B-S-A11 recorded 5 triggers on the following dates:

18-Jul-18	Amber-Green
20-Jul-18	Green-Amber
21-Jul-18	Amber-Green-Amber-Green
22-Jul-18	Green-Amber
28-Jul-18	Amber-Green-Amber-Green

Sensor M068E02-S-A11 recorded 1 trigger on the following dates:

08-Jul-18	Green-Amber-Green

Sensor M068E14A-S-A11 recorded 2 triggers on the following dates:

09-Jul-18	Amber-Green
14-Jul-18	Green-Amber-Green

Sensor M069E03R-S-A11 recorded 6 triggers on the following dates:

16-Jul-18	Green-Amber-Green
17-Jul-18	Green-Amber-Green-Amber
18-Jul-18	Amber-Green
20-Jul-18	Green-Amber-Green
23-Jul-18	Amber-Green
25-Jul-18	Green-Amber

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Sensor M070E02R-S-A11 recorded 3 triggers on the following dates:

23-Jul-18	Green-Amber
24-Jul-18	Amber-Green
28-Jul-18	Green-Amber

Sensor M070E03R-S-A11 recorded 5 triggers on the following dates:

09-Jul-18	Amber-Green
26-Jul-18	Green-Amber
27-Jul-18	Amber-Green
28-Jul-18	Green-Amber
29-Jul-18	Amber-Green

Sensor M70M016-S-A11 recorded 6 triggers on the following dates:

14-Jul-18	Green-Amber-Green
16-Jul-18	Green-Amber-Green
20-Jul-18	Green-Amber-Green
23-Jul-18	Green-Amber-Green
24-Jul-18	Green-Amber-Green
25-Jul-18	Green-Amber

Sensor M070M17R-S-A11 recorded 6 triggers on the following dates:

14-Jul-18	Green-Amber
15-Jul-18	Amber-Green
23-Jul-18	Amber-Green
25-Jul-18	Amber-Green-Amber
27-Jul-18	Green-Amber
28-Jul-18	Amber-Green-Amber