# Noise and Dust Monitoring Report

**Project Ref.:** 20543

**Period: 01 May 2024 to 31 May 2024**

**Site Address:**

100 Gray's Inn Road, London

**For:**

Erith Contractors Ltd

Erith House,

Queen Street

Erith

DA8 1RP

**Environmental Sensors Ltd.**
**262 Cavendish Rd, SW12 0BT**

# Contents



| Date | Document No./Revision version | Comments |
|---|---|---|
| 05 June 2024 | 20239.SummaryReport202405 | Noise/vibration/dust data – report generated |

# Introduction:

Environmental Sensors Ltd. has been appointed by Erith Contractors Ltd. to undertake noise/dust monitoring at the 100 Gray's Inn Road, London.
This monitoring report presents data for the period from 01 May 2024 to 31 May 2024 and it is marked as 20543.SummaryReport202405.

## Monitoring Locations:

Noise and dust monitors have been installed on site as per site-plan attached below.


*Figure 1 Indicative Sipe Plan (ref. Google Maps)*

The locations have been marked as:
L1: Site Courtyard
L2: Clerkenwell Rd
L3: Gray's Inn Rd
L4: East side

The vibration monitors have been installed in the location as per site plan below:


*Figure 2 Indicative Sipe Plan with vibration monitoring locations (ref. Google Maps)*

## Equipment:

The following equipment has been used during the survey:

- 4No. Convergence Instruments Class 1 noise data loggers
- 4No. PM10 monitors
- 3No Convergence Instruments VSEW vibration data loggers

## Thresholds and Alerts:

Noise and dust alerts trigger levels have been agreed and presented below.

**Noise Trigger Levels:**

**Location 1 and 4**

| | Receiver of Alert | Trigger level and integration period | |
|---|---|---|---|
| RED | Steven.Gillam@erith.com | 78dB $L_{Aeq\ 1\ hour}$<br>75dB $L_{Aeq\ 1\ hour}$ | 75dB $L_{Aeq\ 10\ hours\ (Monday – Friday)}$<br>72dB $L_{Aeq\ 5\ hours\ (Saturday)}$ |

**Location 2 & Location 3**

| | Receiver of Alert | Trigger level and integration period | |
|---|---|---|---|
| RED | Steven.Gillam@erith.com | 83dB $L_{Aeq\ 1\ hour}$<br>78dB $L_{Aeq\ 1\ hour}$ | 82dB $L_{Aeq\ 10\ hours\ (Monday – Friday)}$<br>75dB $L_{Aeq\ 5\ hours\ (Saturday)}$ |

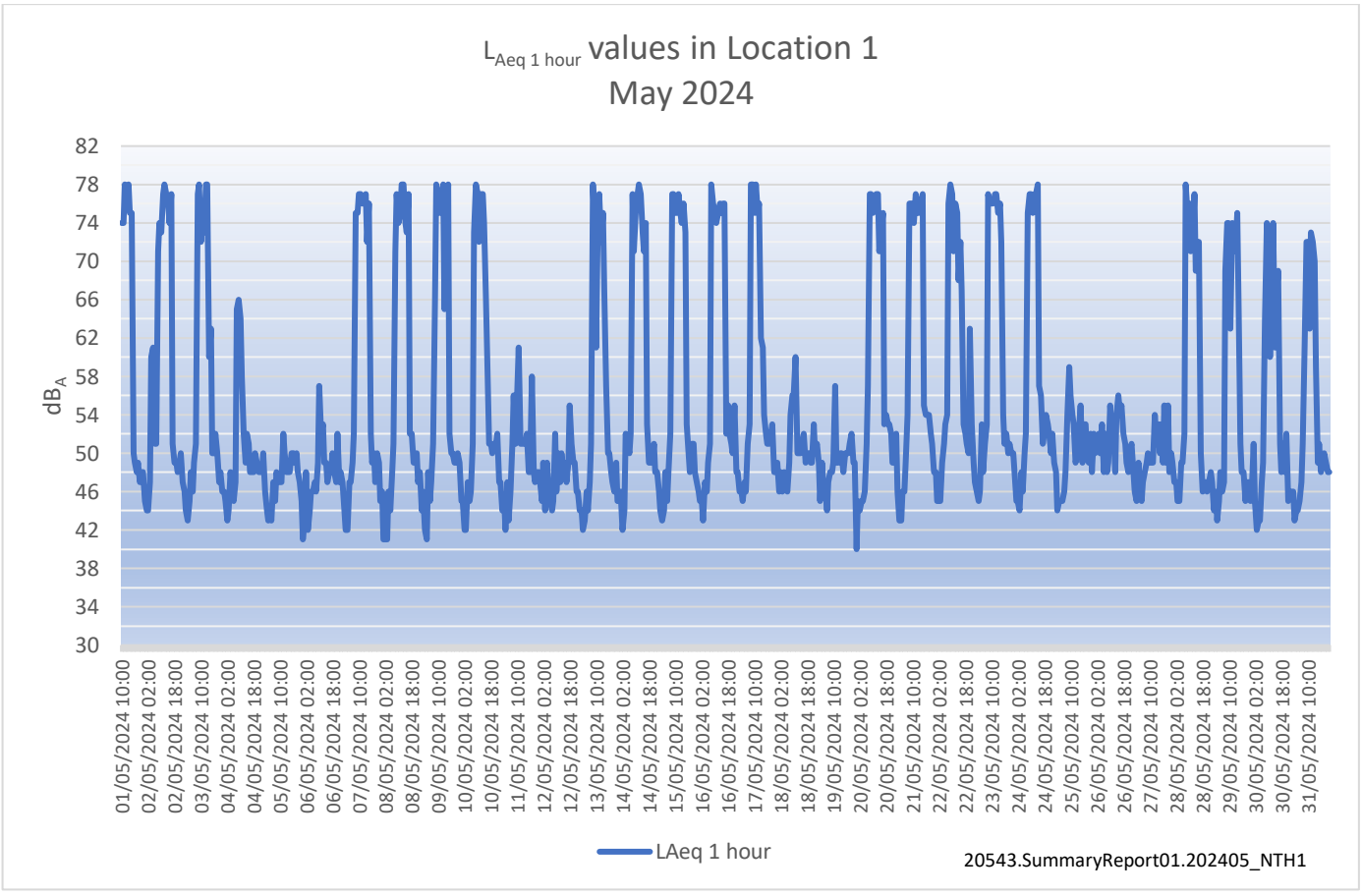
**Dust Trigger Levels (PM10):**

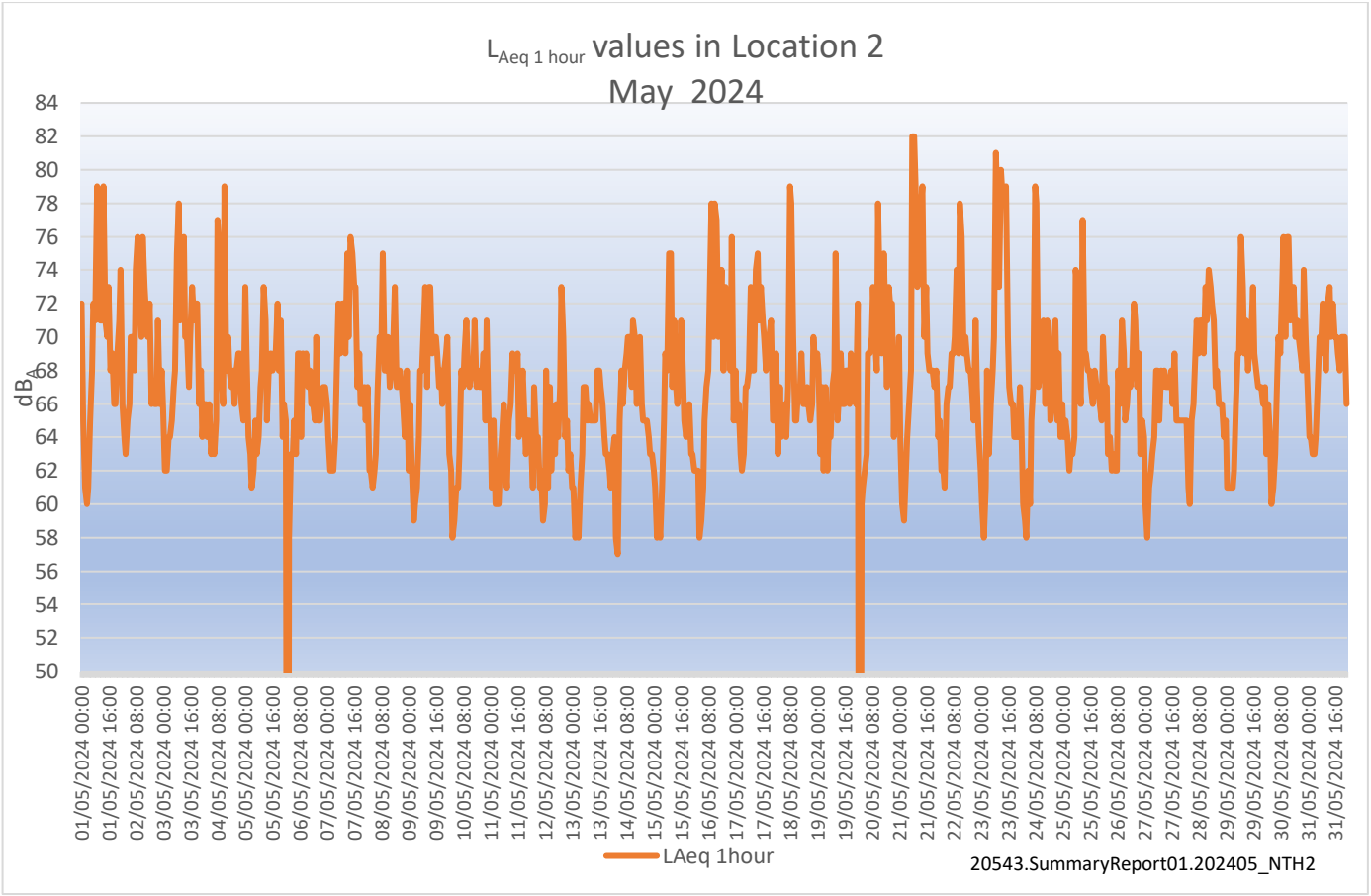
| | Receiver of Alert | Trigger level and integration period |
|---|---|---|
| RED | Steven.Gillam@erith.com | 190 ug/m3 1hour |

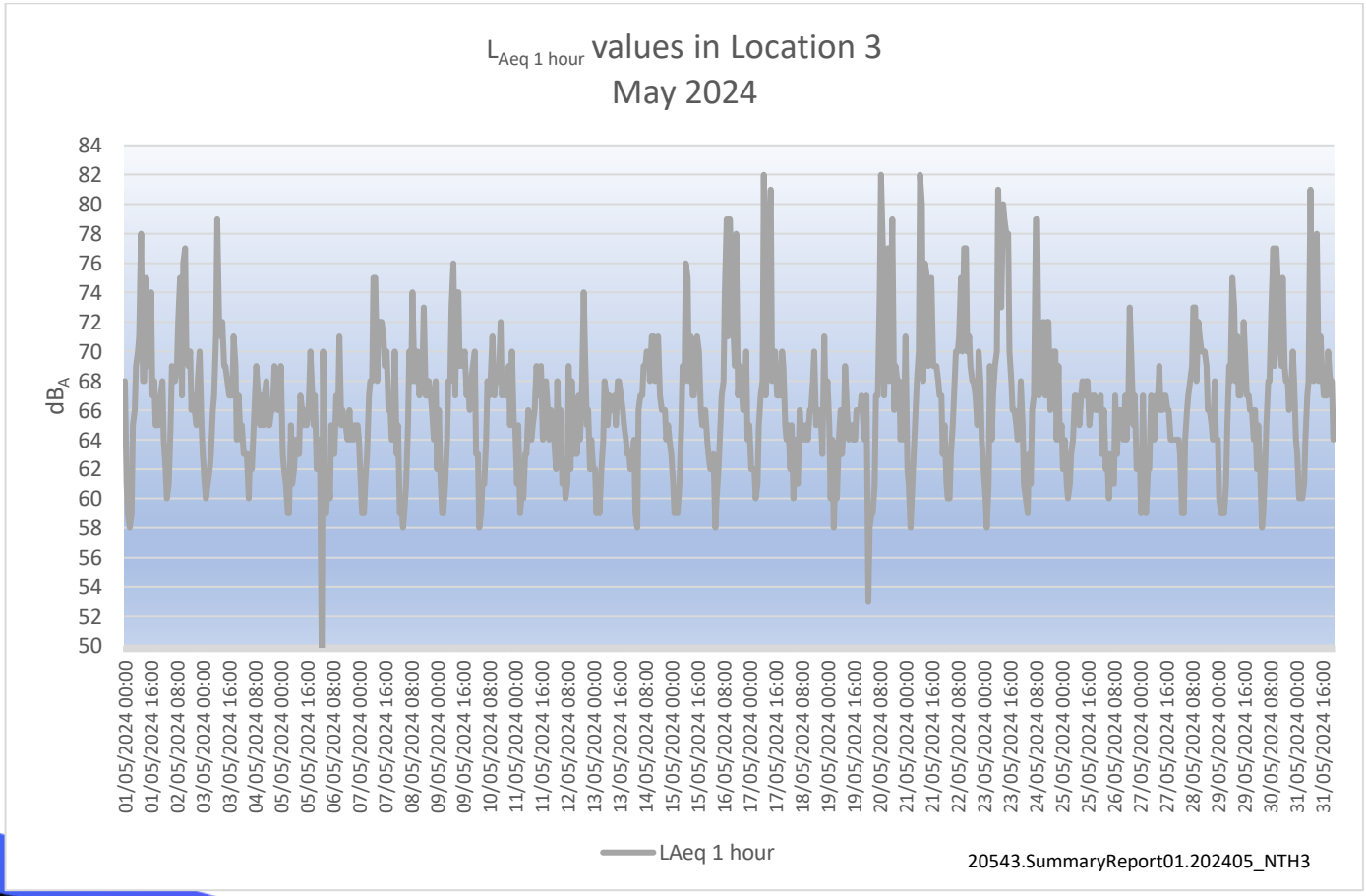
# Monitoring Results:

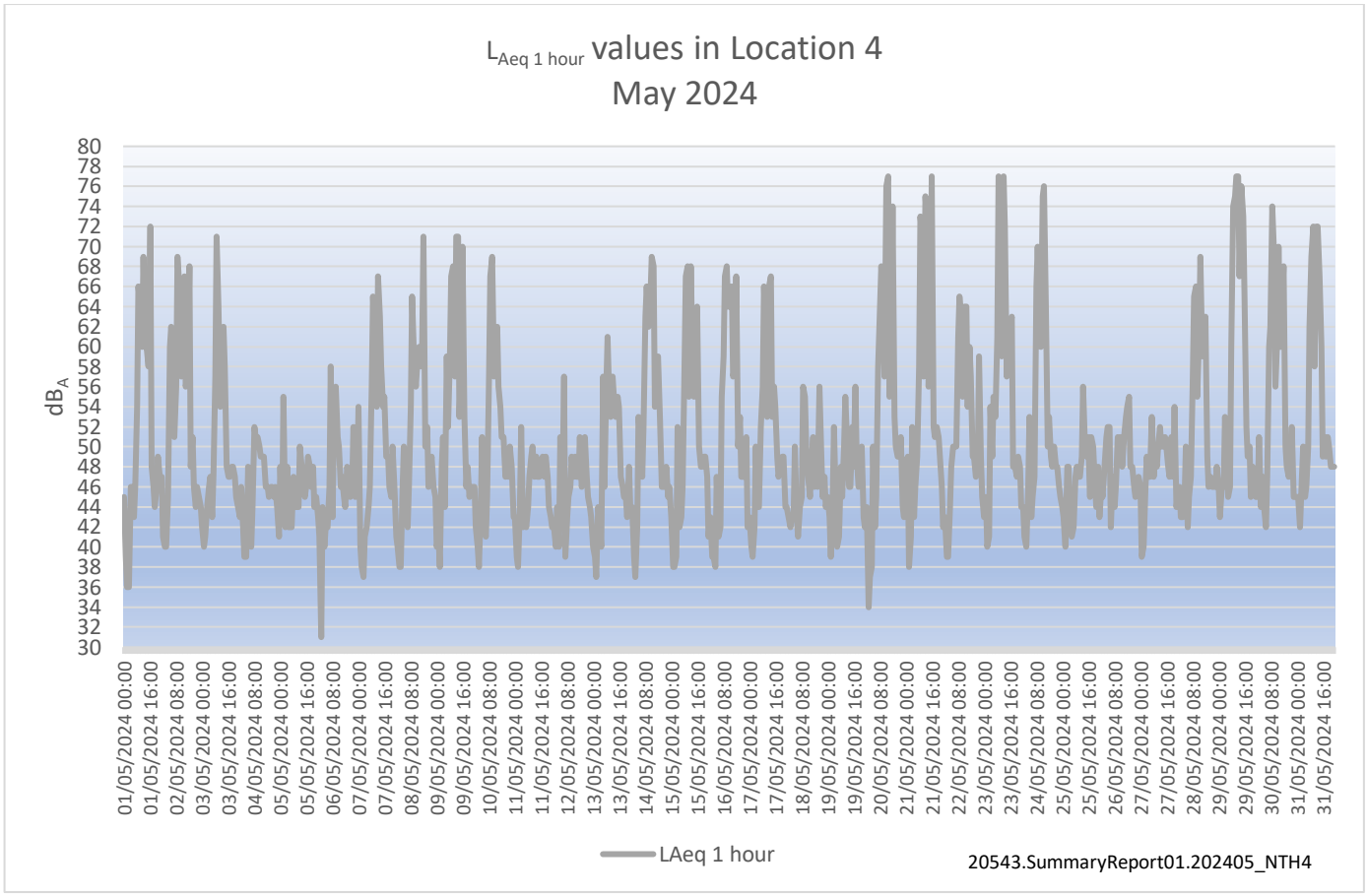
## Noise Survey

Noise monitoring results for the period between 01 May 2024 and 31 May 2024 have been present in Figures: 20543.SummaryReport202405.YYYYMM_NTHx where YYYYMM represents year and month of the monitoring period while 'x' – monitoring location.
Monitoring results have been also compared against agreed criteria of maximum daily allowed level of $L_{Aeq\ 10h\ 08:00-18:00}$ Monday – Friday and $L_{Aeq\ 5h\ 09:00-14:00}$ on Saturday. These values have been presented in graphical version below.




$L_{Aeq\ 1\ hour}$ values in Location 2
May 2024
dB$_A$
LAeq 1hour
20543.SummaryReport01.202405_NTH2


$L_{Aeq\ 1\ hour}$ values in Location 3
May 2024
dB$_A$
LAeq 1 hour
20543.SummaryReport01.202405_NTH3


$L_{Aeq\ 1\ hour}$ values in Location 4
May 2024
$dB_A$
80
78
76
74
72
70
68
66
64
62
60
58
56
54
52
50
48
46
44
42
40
38
36
34
32
30
01/05/2024 00:00
01/05/2024 16:00
02/05/2024 08:00
03/05/2024 00:00
03/05/2024 16:00
04/05/2024 08:00
05/05/2024 00:00
05/05/2024 16:00
06/05/2024 08:00
07/05/2024 00:00
07/05/2024 16:00
08/05/2024 08:00
09/05/2024 00:00
09/05/2024 16:00
10/05/2024 08:00
11/05/2024 00:00
11/05/2024 16:00
12/05/2024 08:00
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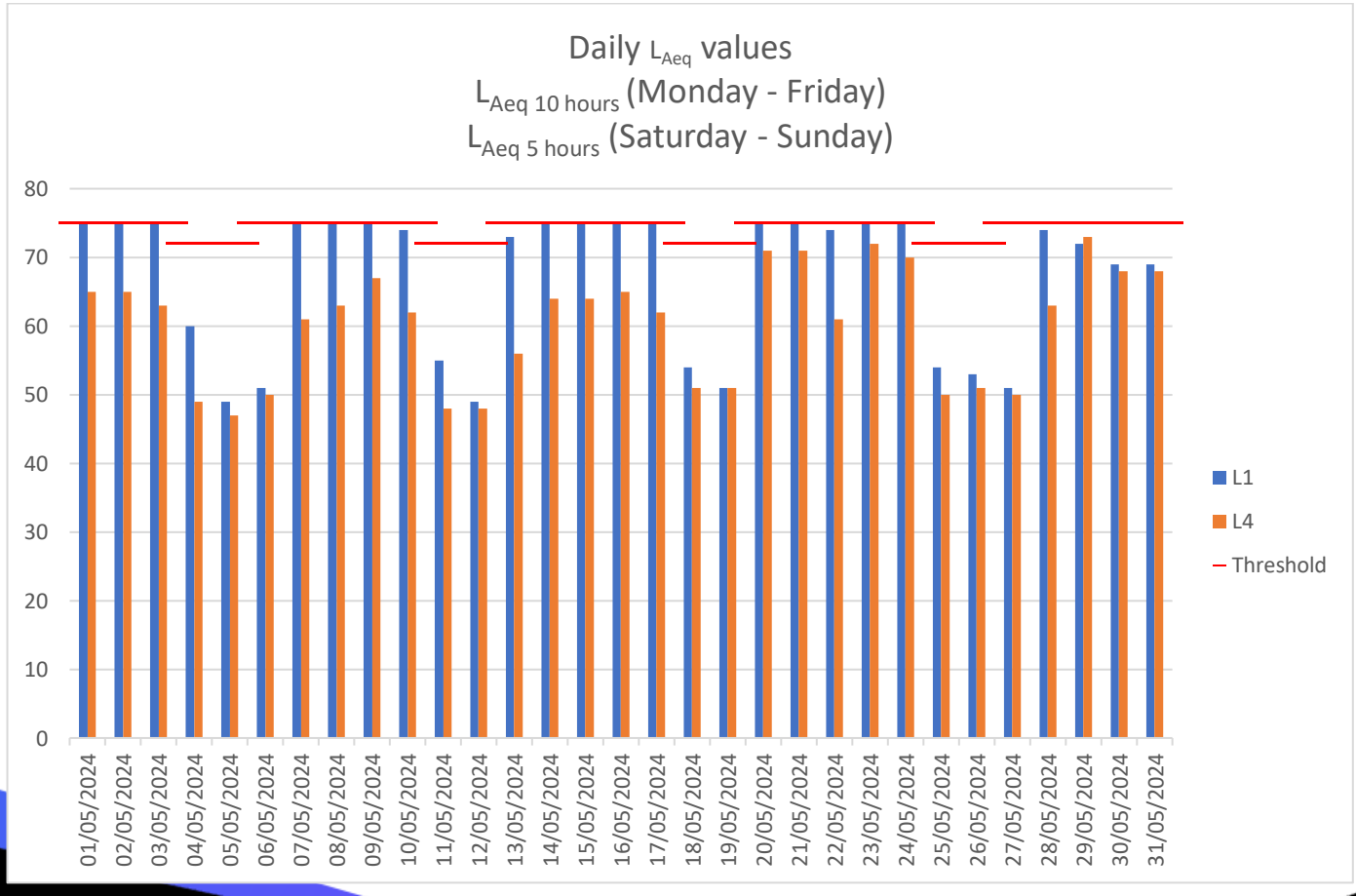
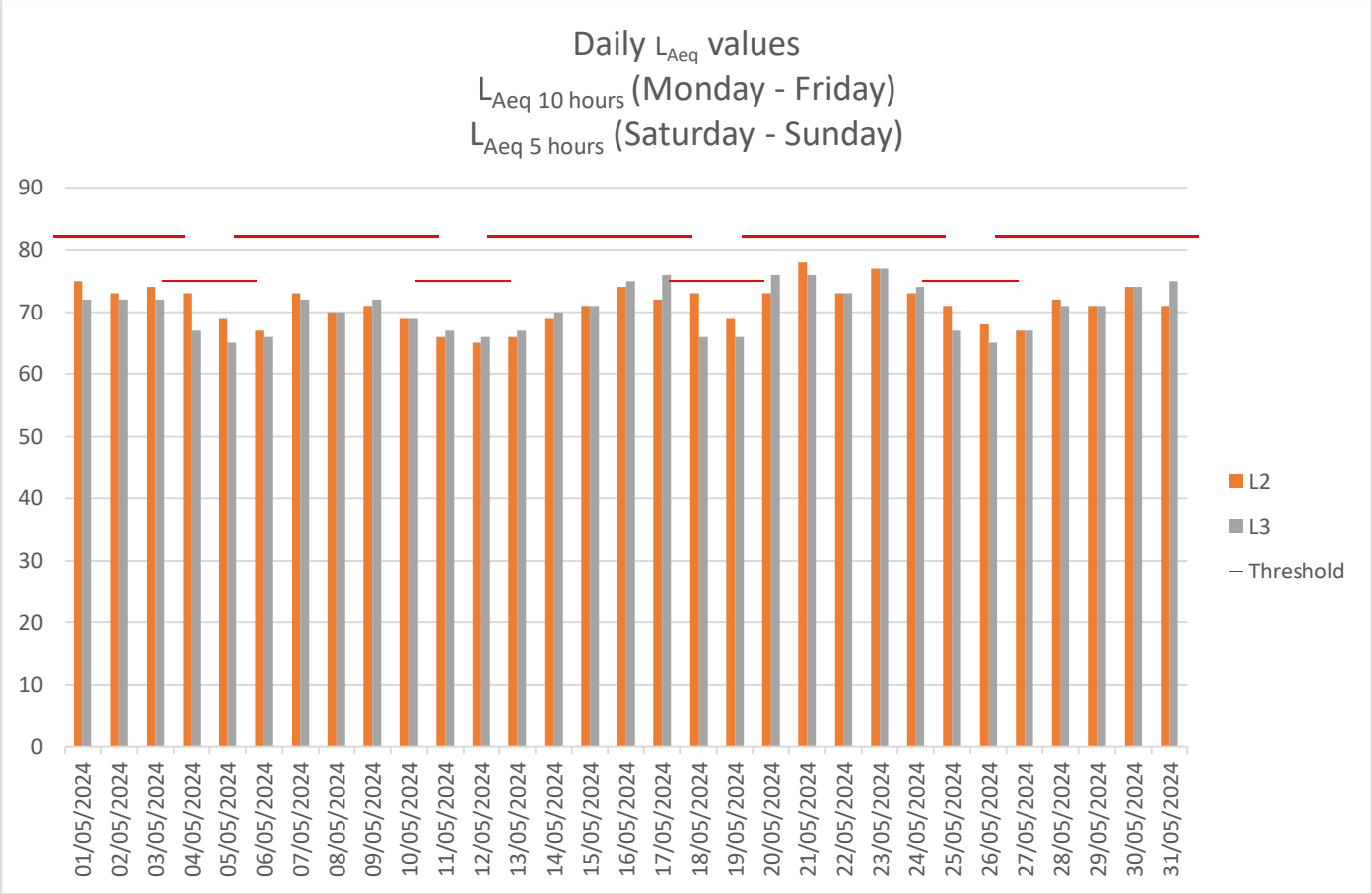
25/05/2024 00:00
25/05/2024 16:00
26/05/2024 08:00
27/05/2024 00:00
27/05/2024 16:00
28/05/2024 08:00
29/05/2024 00:00
29/05/2024 16:00
30/05/2024 08:00
31/05/2024 00:00
31/05/2024 16:00
LAeq 1 hour
20543.SummaryReport01.202405_NTH4


Daily $L_{Aeq}$ values
$L_{Aeq\ 10\ hours}$ (Monday - Friday)
$L_{Aeq\ 5\ hours}$ (Saturday - Sunday)
80
70
60
50
40
30
20
10
0
01/05/2024
02/05/2024
03/05/2024
04/05/2024
05/05/2024
06/05/2024
07/05/2024
08/05/2024
09/05/2024
10/05/2024
11/05/2024
12/05/2024
13/05/2024
14/05/2024
15/05/2024
16/05/2024
17/05/2024
18/05/2024
19/05/2024
20/05/2024
21/05/2024
22/05/2024
23/05/2024
24/05/2024
25/05/2024
26/05/2024
27/05/2024
28/05/2024
29/05/2024
30/05/2024
31/05/2024
L1
L4
Threshold




It is expected that some attenuation of the construction noise will be provided due to the distance to closest sensitive receptors. The actual value will differ depending on location of noise source and the receiver. As the monitoring stations are located at the site boundary the difference between the level recorded at the monitoring station and the level at the façade of the receiver will also depend on the distance between the source and the monitoring station.

The noise levels from the point source reduce by 6dB by doubling the distance as per equation:

$$Lp_{R2} = Lp_{R1} - 20 \cdot \mathrm{Log10}\left(\frac{\mathrm{R2}}{\mathrm{R1}}\right)$$

The distance between monitoring station in Location 1 and closest sensitive receiver's façade is at least 10m while the distance between the source and the monitoring station is approx. 10m.

The distance in Location 2 and Location 3 is approx. 20 m. from the monitoring station and the receiver.

Table 1presents the calculated attenuation of sound due to the distance between microphone (monitoring location) and receiver with consideration of the distance separating the sound source and the monitoring location.

| Distance source to microphone | Distance in meters between monitoring location and receiver | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5 | 6 | 7 | 8 | 9 | 10 | 12 | 14 | 16 | 18 | 20 | 25 | 30 | 35 |
| | Attenuation of sound due to distance | | | | | | | | | | | | | |
| 5m | 6 | 6.8 | 7.6 | 8.3 | 8.9 | 9.5 | 10.6 | 11.6 | 12.5 | 13.3 | 14 | 15.6 | 16.9 | 18.1 |
| 10m | 3.5 | 4.1 | 4.6 | 5.1 | 5.6 | 6 | 6.8 | 7.6 | 8.3 | 8.9 | 9.5 | 10.9 | 12 | 13.1 |
| 15m | 2.5 | 2.9 | 3.3 | 3.7 | 4.1 | 4.4 | 5.1 | 5.7 | 6.3 | 6.8 | 7.4 | 8.5 | 9.5 | 10.5 |
| 20m | 1.9 | 2.3 | 2.6 | 2.9 | 3.2 | 3.5 | 4.1 | 4.6 | 5.1 | 5.6 | 6 | 7 | 8 | 8.8 |
| 25m | 1.6 | 1.9 | 2.1 | 2.4 | 2.7 | 2.9 | 3.4 | 3.9 | 4.3 | 4.7 | 5.1 | 6 | 6.8 | 7.6 |
| 30m | 1.3 | 1.6 | 1.8 | 2.1 | 2.3 | 2.5 | 2.9 | 3.3 | 3.7 | 4.1 | 4.4 | 5.3 | 6 | 6.7 |
| 35m | 1.2 | 1.4 | 1.6 | 1.8 | 2 | 2.2 | 2.6 | 2.9 | 3.3 | 3.6 | 3.9 | 4.7 | 5.4 | 6 |

*Table 1 The relation of sound reduction to distance of the source and receiver towards monitoring position*

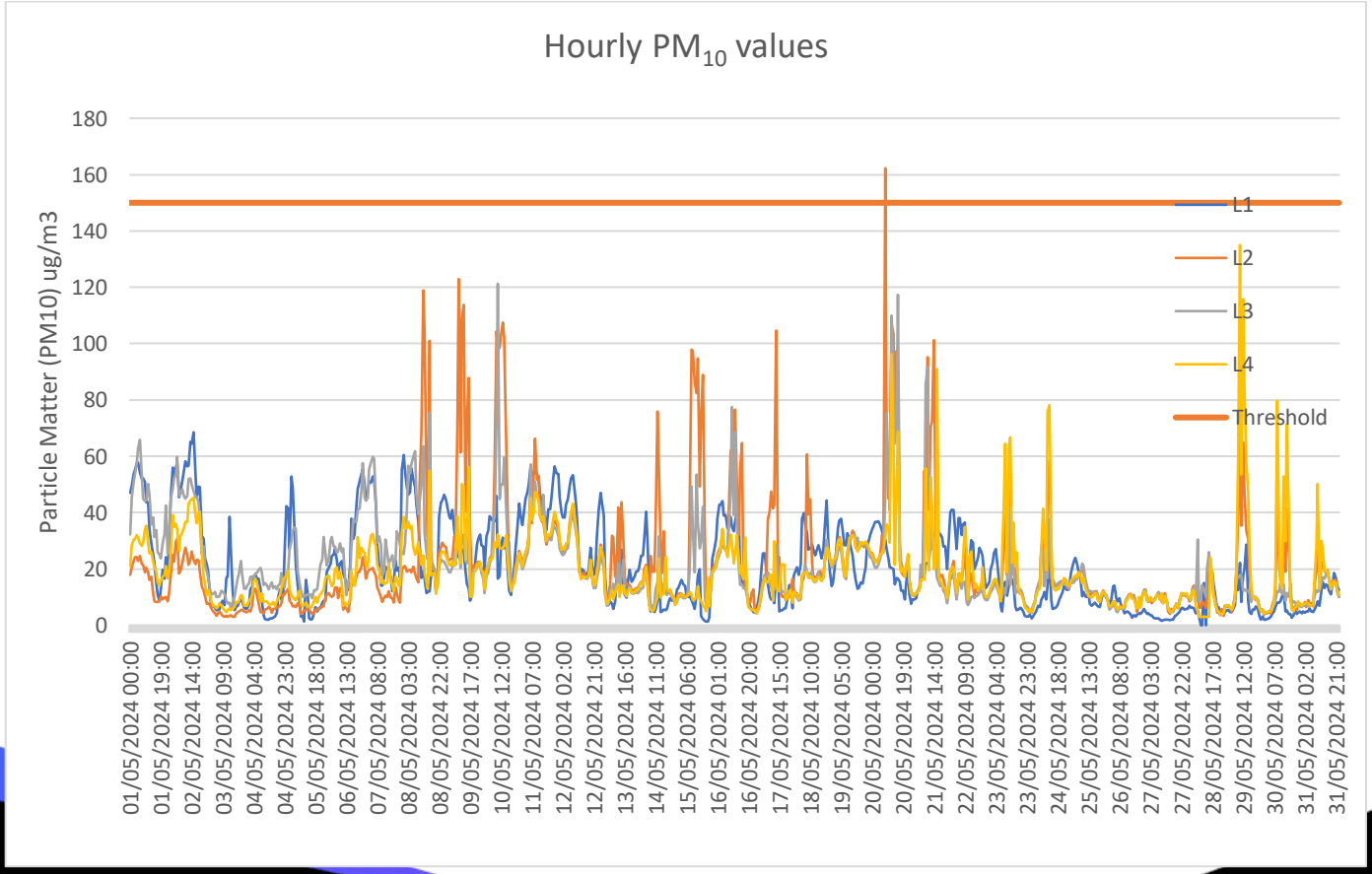
The highlighted columns represent the specific site worst case scenario where receivers are around 10m and 20m away from the site.

## Dust Survey

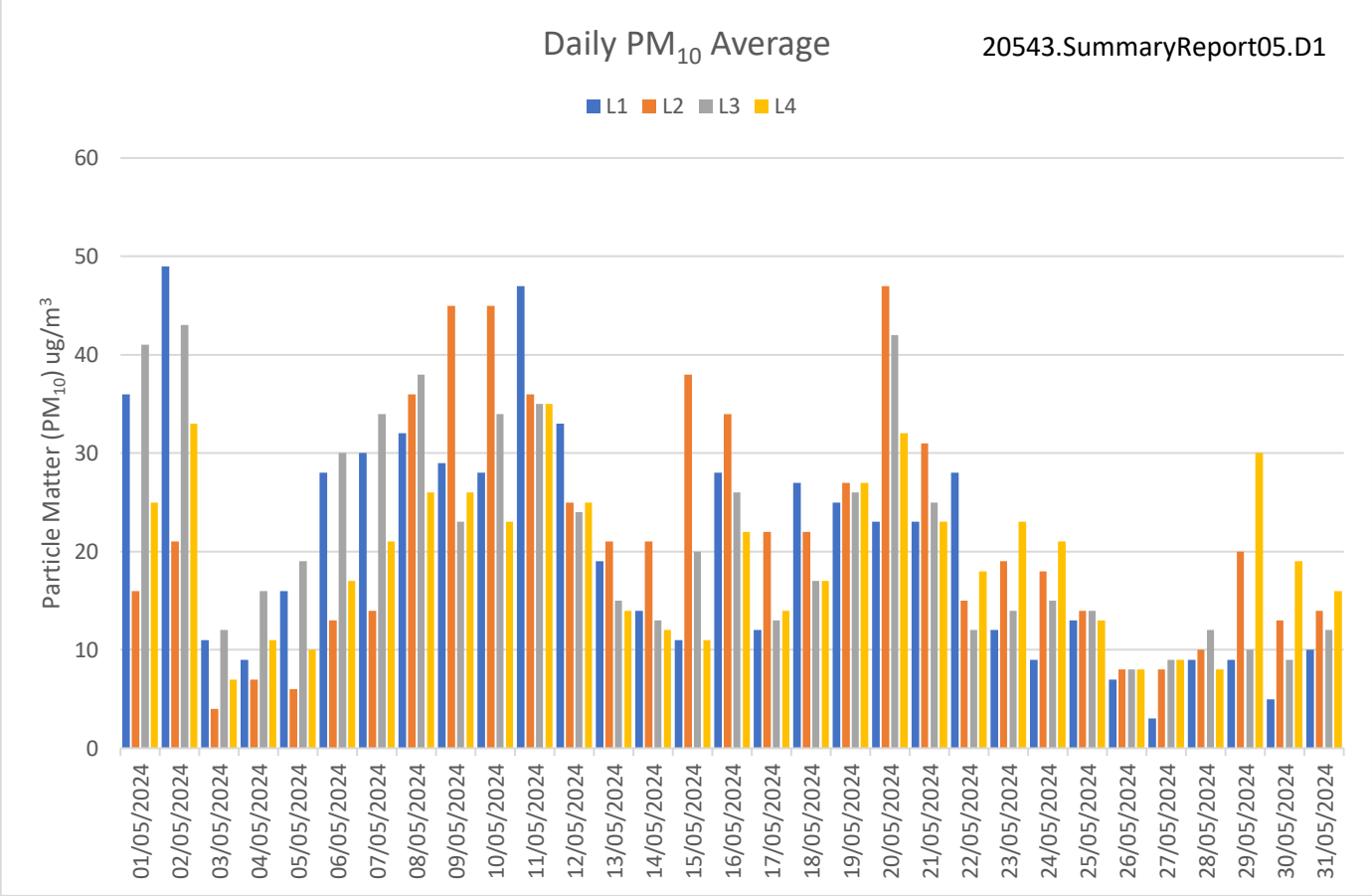
Dust monitoring summary results for the period between 01 May 2024 and 31 May 2024 have been presented in Figures:

- 20543.SummaryReport202405.D_YYYYMM_hourly with summary 1 hour averages, where MMM represents the year and MM month of the reporting data.
- 20543.SummaryReport202405.D1_Daily with summary 1 hour averages.

PM10 values were compared against the action threshold level of 190 ug/m$^3$ 1hour average.



Additional criterion of 150 ug/m$^3$ 15-minut average was set as a preventive pre-action trigger. No specific action is required to be undertaken on 15 min exceedances. This level has also been provided for easier comparison with other data sources.



A summary of PM10 values has been present in the table below.

| Date | Max (µg/m3) | | | | Min (µg/m3) | | | | Average (µg/m3) | | | | Number of Exceedance ≥ 190 µg/m3(1 Hour Mean) | | | | Number of Exceedance ≥ 150 µg/m3(Trigger Level) | | | | Data Capture | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Location 1 | Location 2 | Location 3 | Location 4 | Location 1 | Location 2 | Location 3 | Location 4 | Location 1 | Location 2 | Location 3 | Location 4 | Location 1 | Location 2 | Location 3 | Location 4 | Location 1 | Location 2 | Location 3 | Location 4 | Location 1 | Location 2 | Location 3 | Location 4 |
| 01/05/2024 | 58 | 25 | 66 | 35 | 9 | 8 | 24 | 14 | 36 | 16 | 41 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 02/05/2024 | 69 | 31 | 60 | 45 | 22 | 8 | 19 | 11 | 49 | 21 | 43 | 33 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 03/05/2024 | 39 | 8 | 23 | 13 | 5 | 3 | 6 | 5 | 11 | 4 | 12 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 04/05/2024 | 25 | 13 | 20 | 17 | 2 | 4 | 13 | 7 | 9 | 7 | 16 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 05/05/2024 | 53 | 13 | 35 | 20 | 1 | 4 | 10 | 6 | 16 | 6 | 19 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 06/05/2024 | 56 | 24 | 58 | 31 | 9 | 5 | 11 | 7 | 28 | 13 | 30 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 07/05/2024 | 55 | 21 | 60 | 33 | 12 | 8 | 18 | 12 | 30 | 14 | 34 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 08/05/2024 | 61 | 119 | 76 | 55 | 12 | 13 | 12 | 11 | 32 | 36 | 38 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 09/05/2024 | 46 | 123 | 45 | 56 | 9 | 16 | 12 | 10 | 29 | 45 | 23 | 26 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 10/05/2024 | 46 | 108 | 121 | 32 | 11 | 14 | 12 | 12 | 28 | 45 | 34 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 11/05/2024 | 57 | 66 | 57 | 47 | 34 | 23 | 20 | 21 | 47 | 36 | 35 | 35 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 12/05/2024 | 53 | 42 | 40 | 43 | 18 | 14 | 13 | 14 | 33 | 25 | 24 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 13/05/2024 | 47 | 44 | 25 | 28 | 6 | 10 | 7 | 8 | 19 | 21 | 15 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 14/05/2024 | 40 | 76 | 32 | 24 | 5 | 8 | 6 | 5 | 14 | 21 | 13 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 15/05/2024 | 27 | 98 | 54 | 20 | 1 | 7 | 7 | 5 | 11 | 38 | 20 | 11 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 16/05/2024 | 44 | 77 | 78 | 34 | 5 | 8 | 5 | 5 | 28 | 34 | 26 | 22 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 17/05/2024 | 26 | 105 | 29 | 30 | 5 | 6 | 4 | 4 | 12 | 22 | 13 | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 18/05/2024 | 44 | 61 | 31 | 28 | 14 | 10 | 9 | 9 | 27 | 22 | 17 | 17 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |

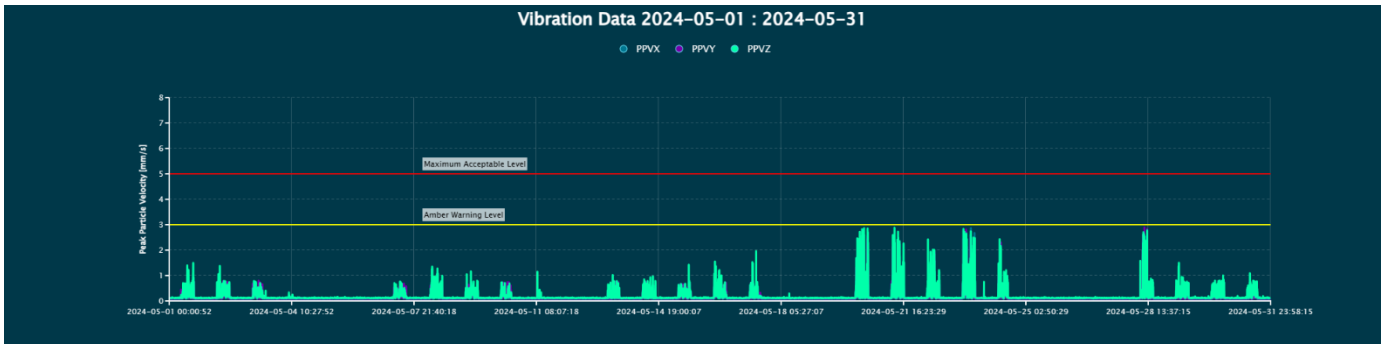
| Date | Max (µg/m3) | | | | Min (µg/m3) | | | | Average (µg/m3) | | | | Number of Exceedance ≥ 190 µg/m3(1 Hour Mean) | | | | Number of Exceedance ≥ 150 µg/m3(Trigger Level) | | | | Data Capture | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Location 1 | Location 2 | Location 3 | Location 4 | Location 1 | Location 2 | Location 3 | Location 4 | Location 1 | Location 2 | Location 3 | Location 4 | Location 1 | Location 2 | Location 3 | Location 4 | Location 1 | Location 2 | Location 3 | Location 4 | Location 1 | Location 2 | Location 3 | Location 4 |
| 19/05/2024 | 38 | 34 | 32 | 32 | 13 | 18 | 16 | 17 | 25 | 27 | 26 | 27 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 20/05/2024 | 37 | 162 | 117 | 96 | 9 | 16 | 17 | 16 | 23 | 47 | 42 | 32 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 21/05/2024 | 36 | 101 | 92 | 91 | 8 | 10 | 8 | 10 | 23 | 31 | 25 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 22/05/2024 | 41 | 26 | 19 | 35 | 11 | 8 | 7 | 9 | 28 | 15 | 12 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 23/05/2024 | 27 | 53 | 42 | 67 | 3 | 6 | 7 | 6 | 12 | 19 | 14 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 24/05/2024 | 24 | 58 | 38 | 78 | 3 | 5 | 5 | 5 | 9 | 18 | 15 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 25/05/2024 | 24 | 20 | 22 | 19 | 7 | 9 | 9 | 8 | 13 | 14 | 14 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 26/05/2024 | 14 | 13 | 12 | 12 | 3 | 5 | 5 | 6 | 7 | 8 | 8 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 27/05/2024 | 6 | 13 | 13 | 12 | 2 | 4 | 5 | 5 | 3 | 8 | 9 | 9 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 28/05/2024 | 19 | 21 | 31 | 24 | 3 | 4 | 4 | 3 | 9 | 10 | 12 | 8 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 29/05/2024 | 29 | 77 | 18 | 135 | 2 | 3 | 4 | 5 | 9 | 20 | 10 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 30/05/2024 | 12 | 46 | 15 | 80 | 2 | 4 | 4 | 4 | 5 | 13 | 9 | 19 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |
| 31/05/2024 | 19 | 31 | 20 | 50 | 4 | 7 | 7 | 7 | 10 | 14 | 12 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 % | 100 % | 100 % | 100 % |

## Vibration Survey

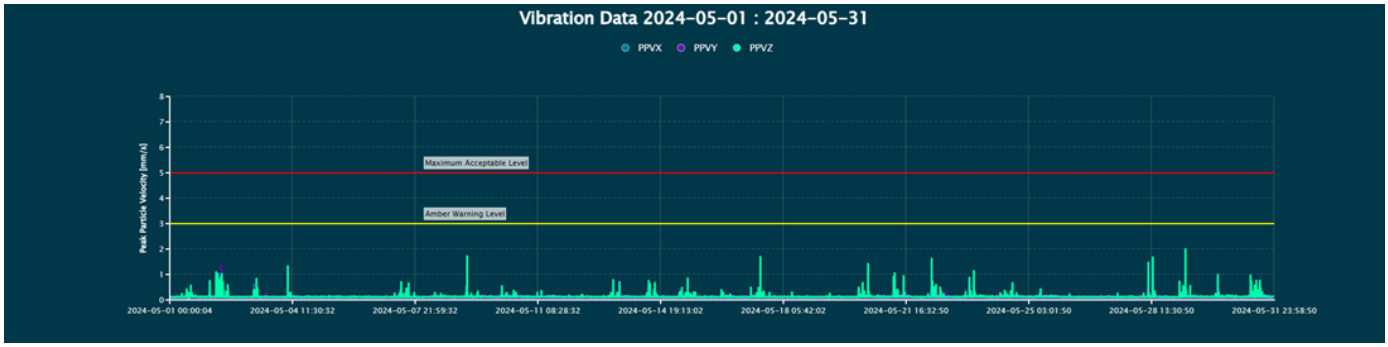
Vibration monitors have been installed in 3 locations as per site plan below.


Data collected during the period were presented in the following graphs:

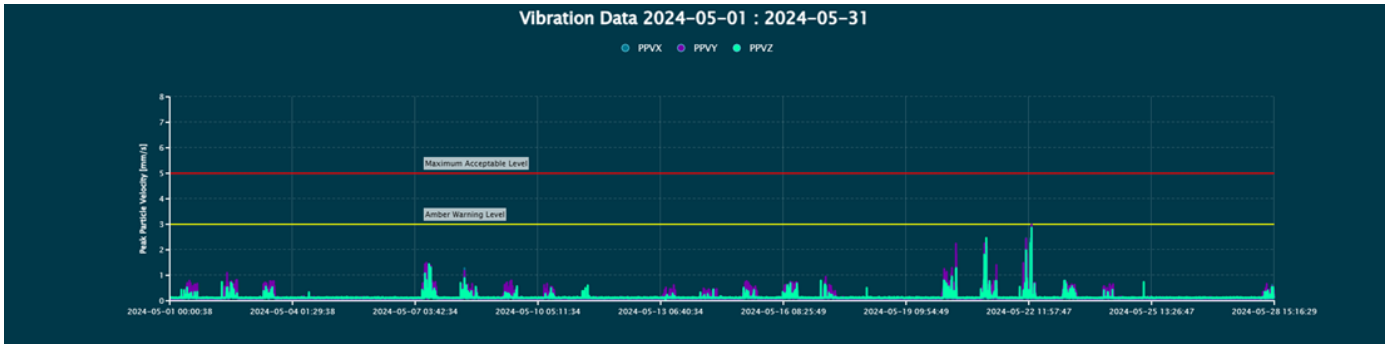
### Location 1



Location 2




Location 3




## List of alerts and actions undertaken.

Noise Red Trigger

No exceedances recorded of daily LAeq.

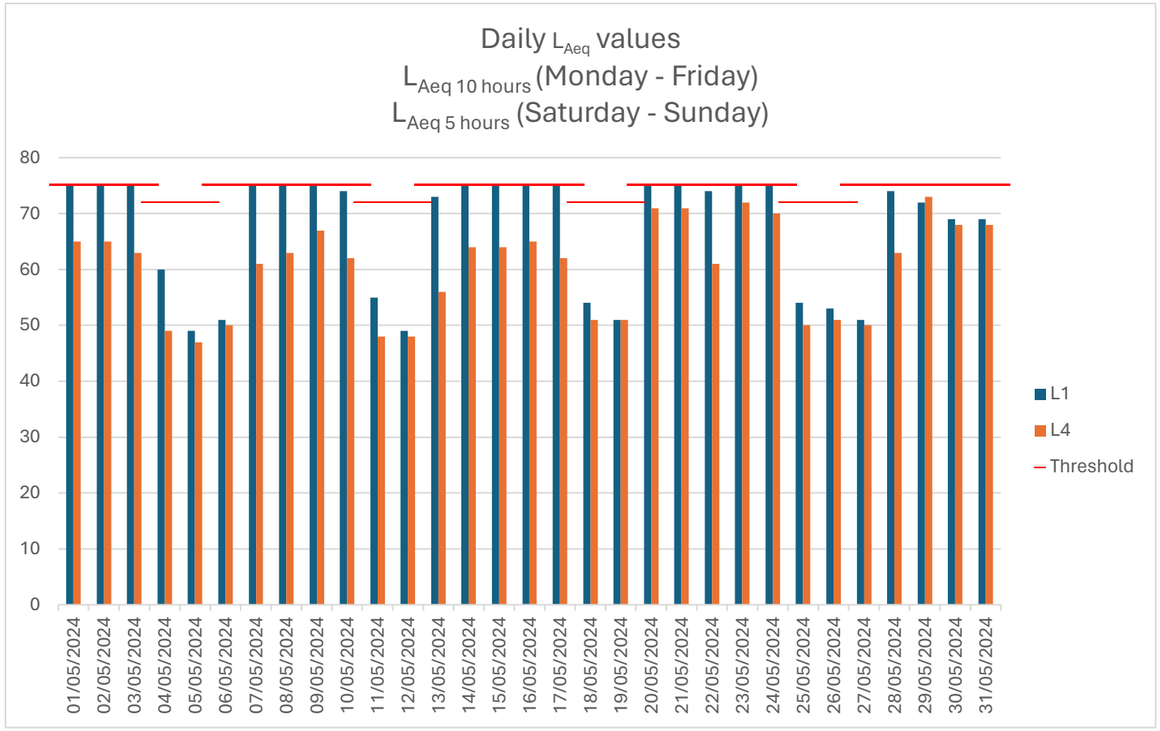
Vibration Red Trigger

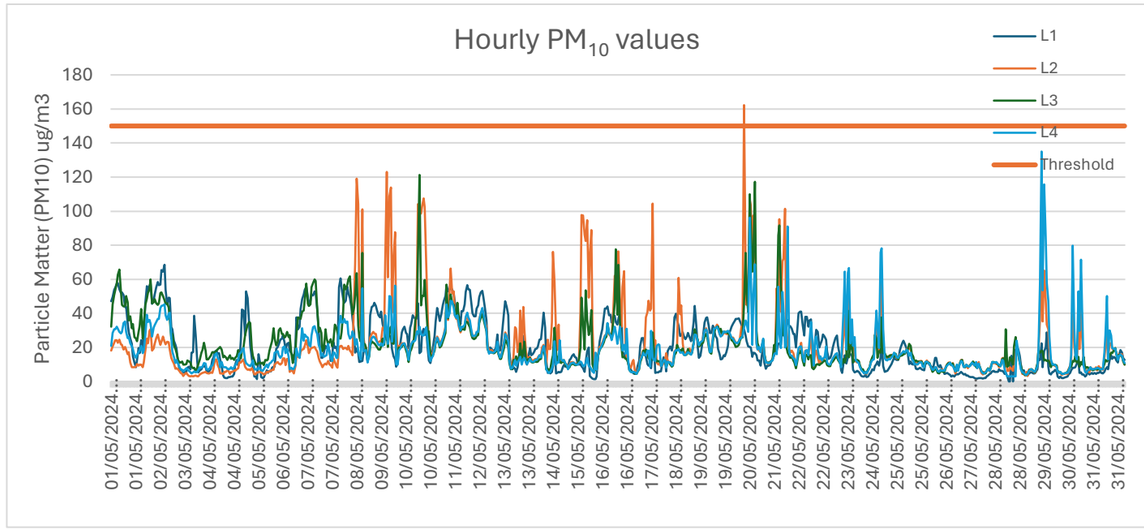
No exceedances recorded.

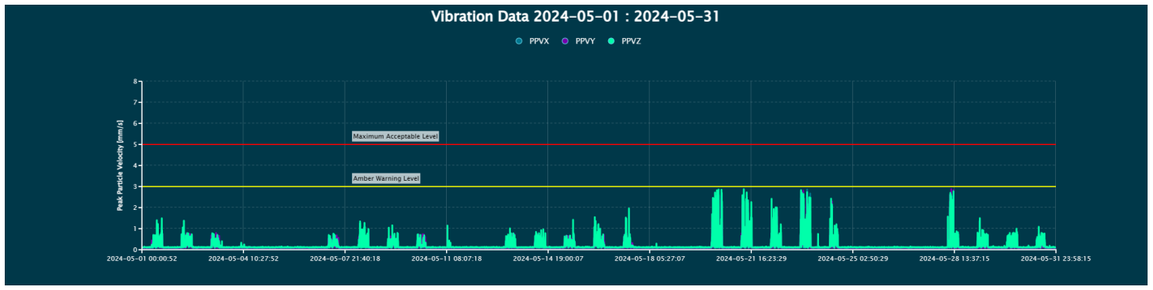
Dust Action Level

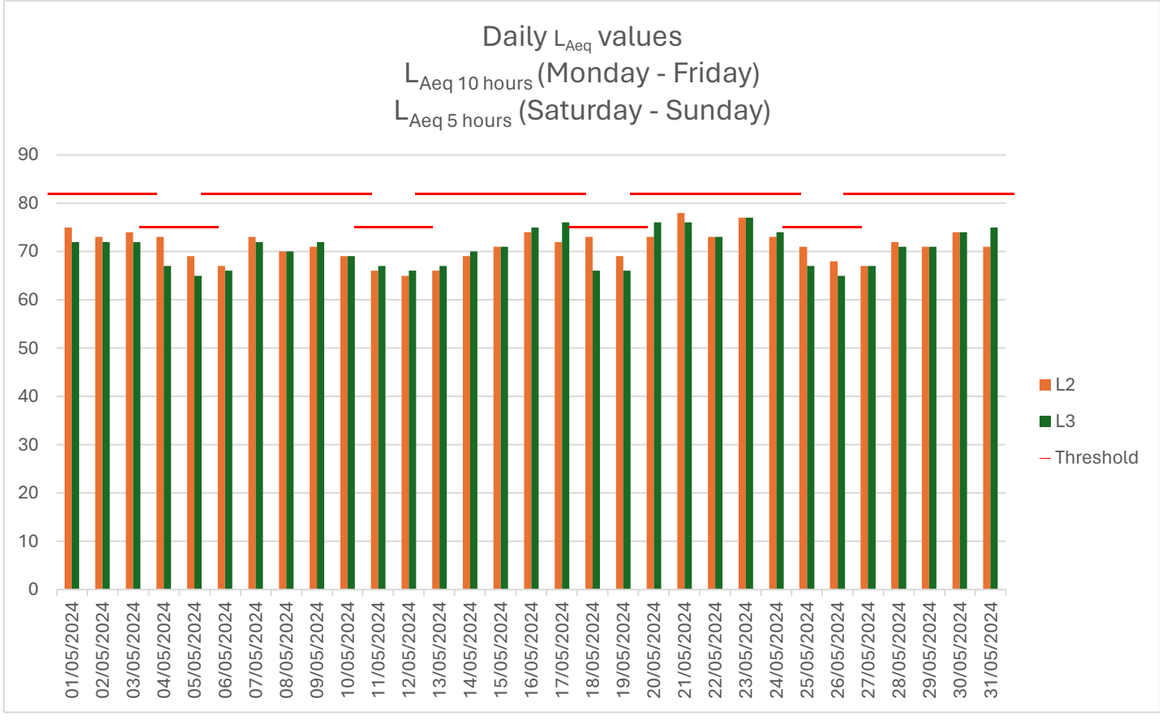
No exceedances recorded.

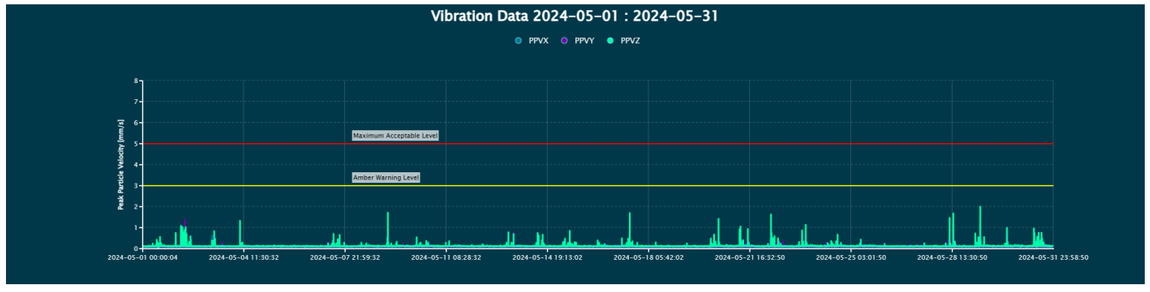
# Noise, Dust & Vibration Monitoring Data Summary: May 2024

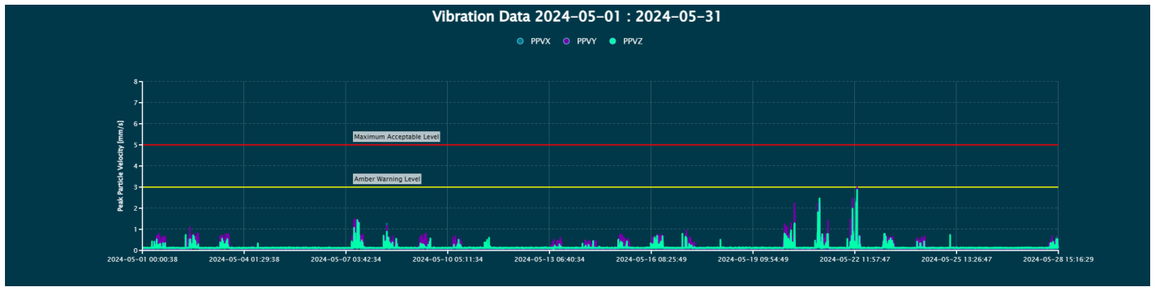
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