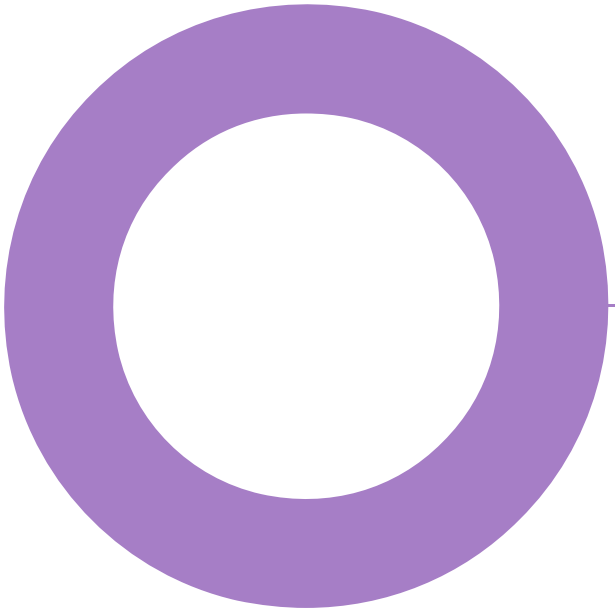
HOARE LEA

Stephenson Way.
London.
GPF Lewis Solutions Ltd.

AIR QUALITY
MONTHLY DUST MONITORING REPORT
01/09/2023 - 30/09/2023
REVISION 00 – 16 NOVEMBER 2023



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
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Site Contact Details:

Name: Richard Wright
Phone: 07855 805638
Email: richard.wright@gpflewis.co.uk
Office Address: 3rd Floor, Twenty Baltic, 16-22 Baltic Street East, EC1Y 0UL

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1. Introduction.

1.1 London Borough of Camden Requirements.

The London Borough of Camden's (LBoC) requirements for real-time dust monitoring are consistent with LBoC and Greater London Authority (GLA) policy and industry best practice guidance. These requirements are triggered when an Air Quality Assessment (AQA) for a proposed development finds that there is a medium or high risk of dust impacts (without considering mitigation measures) during demolition or construction.

Real-time dust monitoring can be used to enable effective on-site management of the air quality impacts of demolition and construction activities through comprehensive preventative dust mitigation and, in the case of triggering a dust alert from the monitoring equipment, through the application of additional reactive dust mitigation measures.

Ultimately, the purpose of real-time dust monitoring is to ensure that the air quality impacts of demolition and construction activities are minimised as far as possible for the protection of amenity and health, both for local residents, the general public, and operatives on-site.

1.2 Development Information.

Hoare Lea have been commissioned by GPF Lewis Solutions Limited to provide construction dust monitoring for the land fronting Stephenson Way, NW1 2HD (the 'Site').

Plans comprise the erection of a 7-storey building plus basement for student accommodation on the upper floors, including shared amenity space at ground and sixth floor level and terrace at the sixth floor level fronting Stephenson Way (Sui Generis) (the 'Development').

Planning permission (ref: 2018/2316/P) was granted in October 2020 subject to a number of planning conditions. Condition 11 outlines the requirement for dust monitoring through the duration of works at the Site:

> *"No development shall take place until full details of the air quality monitors have been submitted to and approved by the local planning authority in writing. Such details shall include the location, number and specification of the monitors, including evidence of the fact that they have been installed in line with guidance outlined in the GLA's Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance and have been in place for 3 months prior to the proposed implementation date. The monitors shall be retained and maintained on site for the duration of the development in accordance with the details thus approved.*
>
> *Reason: To safeguard the amenities of the adjoining premises and the area generally in accordance with the requirements of policies G1, A1, D1 and CC4 of the London Borough of Camden Local Plan 2017."*

The working hours for the demolition and construction activities, as detailed in the planning permission, are as follows:

- 08:00 – 18:00 on Monday to Friday;
- 08:00 – 13:00 on Saturdays; and
- No working on Sundays or Public Holidays.

As per the planning condition, particulate matter (PM_{10}) monitoring is being undertaken in order to protect nearby sensitive receptors from the effects of dust exposure as a consequence of on-going works.

This report presents the monthly monitoring results of the dust monitoring from the 1st of September 2023 to the 30th of September 2023. This period represents baseline air quality monitoring data as construction has not yet started on-site. See Appendix 1 for the locations of the monitors on Site.

2. Site Updates.

Two monitors have been in place for the full duration of the month with no changes. These monitors will be in place until the end of January to gather monitoring data to inform baseline air quality conditions.

A tree on the south west of the Site was removed on the 26th of September 2023 as part of the Site clearing works. This is not expected to have an impact on monitored dust emissions. No other works have taken place on-site during this monitoring period.

3. Monitoring Summary.

- There have been no exceedances of the 1-hour trigger level or the 24-hour limit value at the Site.
- There have been no dust generating works on-site during this monitoring period.
- Data capture was 100% at monitoring location 1.
- Data capture was 14.6% at monitoring location 2. This monitor has had limited solar power due to overshadowing from the surrounding tree and buildings. There is no alternative power supply or suitable location for this monitor.

Further information on the monitored data is provided in Section 5.

4. Methodology.

4.1 Monitoring Equipment.

Two EarthSense Zephyrs have been deployed to record PM_{10} and $PM_{2.5}$ concentrations. The equipment is supplied with power from connected solar panels to provide active sampling throughout the monitoring period.

The EarthSense Zephyr is an MCERTS Certified Indicative Ambient Particulate Monitor and is used for the purposes of construction dust monitoring across the UK. The equipment has been deemed acceptable for use by LBoC on the 1st of August 2023. The monitor is capable of recording particulate matter within 5 $\mu g/m^3$ of accuracy on 10 second intervals. The monitor will send data to an online dashboard which provides real-time data and has the capability to send alerts when set action levels are exceeded.

Both monitors were serviced and calibrated ahead of installation on-site.

4.2 Monitoring Locations.

The monitoring locations are presented in the Construction Management Plan (CMP) submitted to LBoC and agreed with the Environmental Health Officer.

Two monitoring locations have been determined to provide a transect across the Site. Based on publicly available data at Heathrow Airport, the prevailing wind direction is south-westerly. As such, the monitors have been positioned within the north east and south west corners of the Site in the prevailing wind direction, to determine whether any dust is leaving the Site during construction works.

The locations and photographs of the installed monitors are displayed in Appendix 1.

4.2.1 Monitor 1

Monitor 1 is located towards the north-east corner of the Site, on a lamppost on the adjacent footpath and has been recording data at this location since 31st July 2023, with good data capture (100% based on hourly concentrations recorded between 1st September 2023 and 30th of September 2023).

This location is deemed safe and does not obstruct pedestrian and vehicle traffic. The monitor on the lamppost has been located at 1.9 m height, this is the highest point at which the monitor can be affixed safely without interfering with signage associated affixed to the lamppost, ensuring a free flow of air around the inlet. In line with manufacturer's guidance, the solar panel has been positioned above the monitor to prevent interference with the air flow around the inlet (positioned at the bottom of the monitor). The lamppost location allows for a consistent monitoring location throughout the Development baseline and construction phases, as it is unlikely to require relocation during works commencing on-site.

4.2.2 Monitor 2

Monitor 2 is located on the fence towards the south west corner of the Site at a height of 3.2 m to be above the current fencing and away from the adjacent building to allow free flow of air around the inlet. It has been in monitoring from 9th of August.

This monitor had inconsistent data capture during the first month of its installation on Site caused by lack of solar power due to overshadowing from trees and the surrounding buildings. During this period, the data capture from the monitor has been 14.6% based on hourly concentrations recorded between the 1st of September 2023 and the 30th of September 2023. With the removal of the tree, the overshadowing may be reduced but solar power may still be limited due to limited daylight during the winter months and periods of poor weather.

4.3 Trigger Levels.

In line with the requirements of the planning condition, trigger level has been set for monitored PM_{10} concentrations on-site, above which steps must be taken to reduce and minimise the risk of dust-related impacts. Notification of exceedances of this level will be automatically received by email to inform the on-site team. The 1-hour mean trigger level is set out in Table 1 and is based on the Site Action Level provided within the most

recent IAQM guidance. Following analysis of the baseline data period, amber warning levels may also be determined to assist with providing an early warning system to on-site personnel.

Table 1: Trigger Level for PM_{10}.

Trigger Level	Concentration
Action Level (as a 1-hour average)	190 µg/m^3

In addition to this, the 24-hour average limit value 50 µg/m^3 must also be considered, as set out by the Air Quality Standards legislation.

5. Dust Monitoring Results.

A summary of 15 minute average, 1-hour average and 24-hour average PM_{10} levels are presented for monitoring locations 1 and 2. Graphs of the dust monitoring results are presented in Appendix 2.

5.1 Data Capture.

Table 2 illustrates the 15 minute average data capture for both of the monitors on-site. This shows the proportion of samples that the monitors were able to capture throughout each monitoring period. Each monitoring period represents a week (Monday to Sunday) throughout the month, with the exception of the first and last monitoring periods which are shorter.

Table 2: Summary of 15-Minute Average Data Capture at Each Monitor.

Monitoring Period	Monitor 1 Data Capture	Monitor 2 Data Capture
01/09/2023 - 03/09/2023	100.0%	13.4%
04/09/2023 - 10/09/2023	100.0%	14.9%
11/09/2023 - 17/09/2023	100.0%	16.4%
18/09/2023 - 24/09/2023	100.0%	12.4%
25/09/2023 - 30/09/2023	100.0%	15.3%
Overall	100.0%	14.6%

5.2 Monitoring Location 1.

Table 3, Table 4, and Table 5 present a summary of the 15 minute, 1-hour and 24-hour average PM_{10} levels at monitoring location 1.

Table 3: Summary of 15-Minute Dust Monitoring Results at Monitoring Location 1.

Monitoring Period	Maximum PM_{10} Concentration ($\mu g/m^3$)	Minimum PM_{10} Concentration ($\mu g/m^3$)	Average PM_{10} Concentration ($\mu g/m^3$)
01/09/2023 - 03/09/2023	35.7	6.0	17.8
04/09/2023 - 10/09/2023	80.7	6.9	30.3
11/09/2023 - 17/09/2023	42.8	3.2	14.4
18/09/2023 - 24/09/2023	40.7	3.1	6.6
25/09/2023 - 30/09/2023	26.8	3.2	7.5
Overall	80.7	3.1	15.3

Table 4: Summary of 1-Hour Dust Monitoring Results at Monitoring Location 1.

Monitoring Period	Maximum PM_{10} Concentration ($\mu g/m^3$)	Minimum PM_{10} Concentration ($\mu g/m^3$)	Average PM_{10} Concentration ($\mu g/m^3$)	Number of Exceedances of 190 $\mu g/m^3$ Trigger Level (1-hour)
01/09/2023 - 03/09/2023	33.9	6.5	17.5	0

Monitoring Period	Maximum PM_{10} Concentration ($\mu g/m^3$)	Minimum PM_{10} Concentration ($\mu g/m^3$)	Average PM_{10} Concentration ($\mu g/m^3$)	Number of Exceedances of 190 $\mu g/m^3$ Trigger Level (1-hour)
04/09/2023 - 10/09/2023	78.6	7.5	30.4	0
11/09/2023 - 17/09/2023	42.6	3.5	14.3	0
18/09/2023 - 24/09/2023	41.9	3.5	6.8	0
25/09/2023 - 30/09/2023	15.0	3.6	7.5	0
Overall	78.6	3.5	15.3	0

Table 5: Summary of 24-Hour Dust Monitoring Results at Monitoring Location 1.

Monitoring Period	Maximum PM_{10} Concentration ($\mu g/m^3$)	Minimum PM_{10} Concentration ($\mu g/m^3$)	Average PM_{10} Concentration ($\mu g/m^3$)	Number of Exceedances of 50 $\mu g/m^3$ (24-hour)
01/09/2023 - 03/09/2023	18.2	7.7	12.8	0
04/09/2023 - 10/09/2023	40.4	23.6	27.8	0
11/09/2023 - 17/09/2023	41.0	7.0	16.3	0
18/09/2023 - 24/09/2023	27.8	5.7	9.4	0
25/09/2023 - 30/09/2023	9.5	6.6	7.5	0
Overall	40.4	23.6	27.8	0

5.3 Monitoring Location 2.

Table 6, Table 7, and Table 8 present a summary of the 15 minute, 1-hour and 24-hour average PM_{10} levels at monitoring location 2.

Table 6: Summary of 15-Minute Average Dust Monitoring Results at Monitoring Location 2.

Monitoring Period	Maximum PM_{10} Concentration ($\mu g/m^3$)	Minimum PM_{10} Concentration ($\mu g/m^3$)	Average PM_{10} Concentration ($\mu g/m^3$)
01/09/2023 - 03/09/2023	19.3	4.4	11.2
04/09/2023 - 10/09/2023	54.8	2.7	19.7
11/09/2023 - 17/09/2023	33.0	1.9	7.7

Monitoring Period	Maximum PM_{10} Concentration ($\mu g/m^3$)	Minimum PM_{10} Concentration ($\mu g/m^3$)	Average PM_{10} Concentration ($\mu g/m^3$)
18/09/2023 - 24/09/2023	10.2	2.1	4.8
25/09/2023 - 30/09/2023	12.7	2.3	5.8
Overall	54.8	1.9	9.9

Table 7: Summary of 1-Hour Average Dust Monitoring Results at Monitoring Location 2.

Monitoring Period	Maximum PM_{10} Concentration ($\mu g/m^3$)	Minimum PM_{10} Concentration ($\mu g/m^3$)	Average PM_{10} Concentration ($\mu g/m^3$)	Number of Exceedances of 190 $\mu g/m^3$ (1-hour)
01/09/2023 - 03/09/2023	19.3	4.4	10.6	0
04/09/2023 - 10/09/2023	47.3	2.7	18.6	0
11/09/2023 - 17/09/2023	22.9	1.9	7.9	0
18/09/2023 - 24/09/2023	10.2	2.4	4.7	0
25/09/2023 - 30/09/2023	12.7	2.4	5.7	0
Overall	47.3	1.9	9.0	0

Table 8: Summary of 24-Hour Average Dust Monitoring Results at Monitoring Location 2.

Monitoring Period	Maximum PM_{10} Concentration ($\mu g/m^3$)	Minimum PM_{10} Concentration ($\mu g/m^3$)	Average PM_{10} Concentration ($\mu g/m^3$)	Number of Exceedances of 50 $\mu g/m^3$ (24-hour)
01/09/2023 - 03/09/2023	11.8	6.0	8.9	0
04/09/2023 - 10/09/2023	21.8	5.9	15.3	0
11/09/2023 - 17/09/2023	33.6	4.6	10.7	0
18/09/2023 - 24/09/2023	13.1	2.9	5.9	0
25/09/2023 - 30/09/2023	7.9	4.1	5.7	0
Overall	33.6	2.9	9.5	0

6. Dust Monitoring Conclusions.

6.1 Monitoring Location 1.

The results in Table 4 indicate that there has been no exceedance of the 1-hour trigger level during this monitoring period. The highest 1-hour average concentration recorded was 78.6 µg/m^3 on the 10th of September 2023 at 05:00am. The results in Table 5 indicate that there were no exceedances of the 24-hour limit value. The highest 24-hour average concentration recorded was 41.0 µg/m^3 on the 11th of September 2023. These concentrations can be attributed to natural variability of the background concentrations as there were no works being undertaken on during this period.

Data capture at this location has been consistent at 100% for this monitoring period.

6.2 Monitoring Location 2.

The results in Table 7 indicate that there has been no exceedance of the 1-hour trigger level during this monitoring period. The maximum 1-hour concentration recorded was 47.3 µg/m^3 on the 10th of September 2023 at 10:00am. The results in Table 8 indicate that there were no exceedances of the 24-hour limit value. The 24-hour average highest concentration recorded was 33.6 µg/m^3 on the 11th of September 2023. These concentrations can be attributed to natural variability as there were no works being undertaken on during this period. This monitor was not in place during the monitoring period where Monitor 1 recorded the highest average concentrations.

Data capture at this monitoring location has been limited due to the lack of solar power due to overshadowing from trees and the surrounding buildings. Data from the monitor is typically being recorded between approximately 10:00am and 4:00pm when more sunlight is available. However this is highly variable depending on weather conditions.

It is not possible to provide an external power supply to this monitoring location. With the removal of the tree, the overshadowing may be reduced but solar power may still be limited due to limited daylight during the winter months and periods of poor weather.

Appendix 1 – Photographs of Installed Monitors.

Monitor Locations.

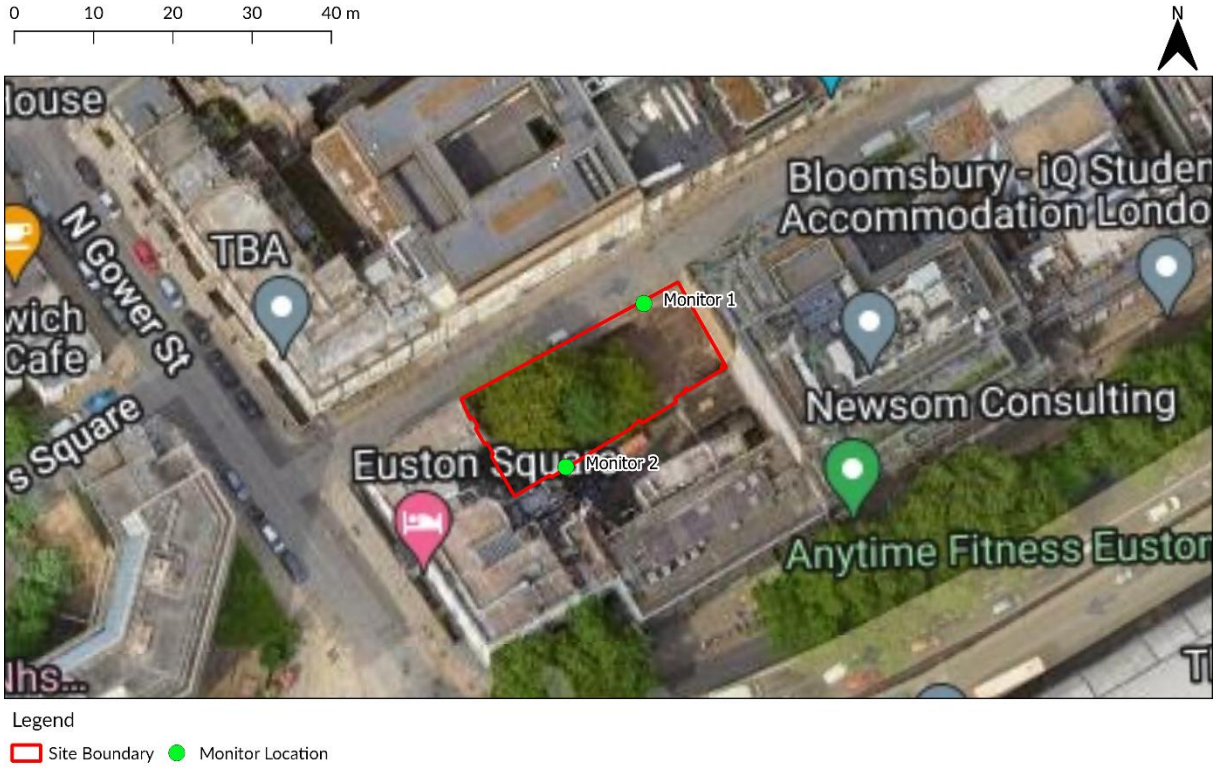
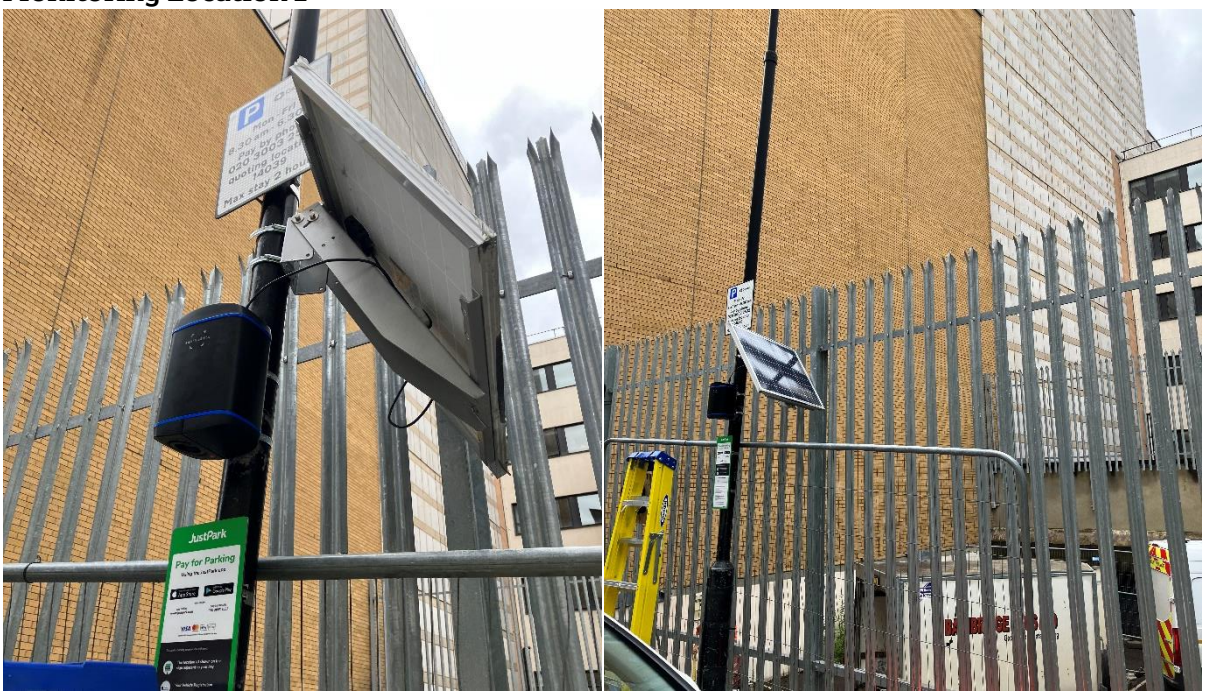
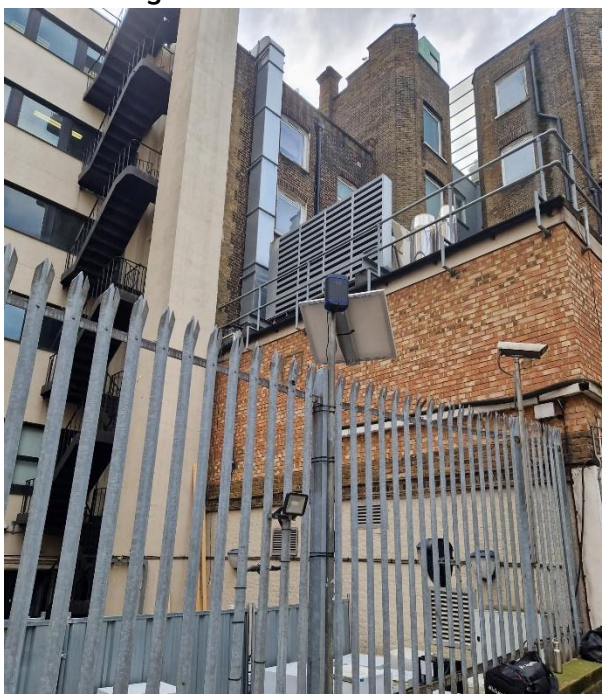


Figure 1: Locations of the EarthSense Zephyrs on the Site. Contains Google Maps Data (2023) [Retrieved 26/10/2023].

Monitoring Location 1



Monitoring Location 2



Appendix 2 – Dust Monitoring Graphs.

Monitoring Location 1.

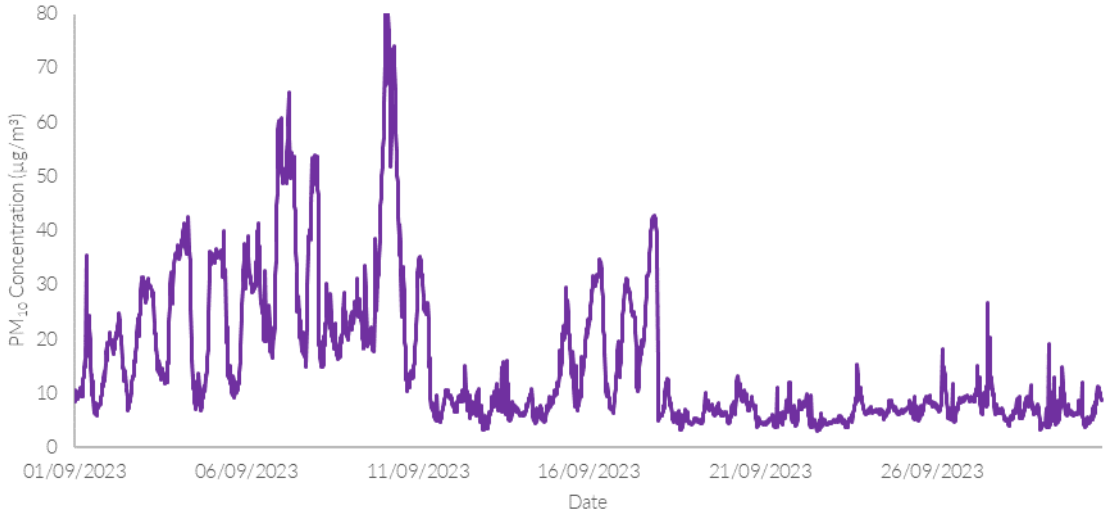


Figure 2: 15 Minute Average PM_{10} Concentrations at Monitoring Location 1.

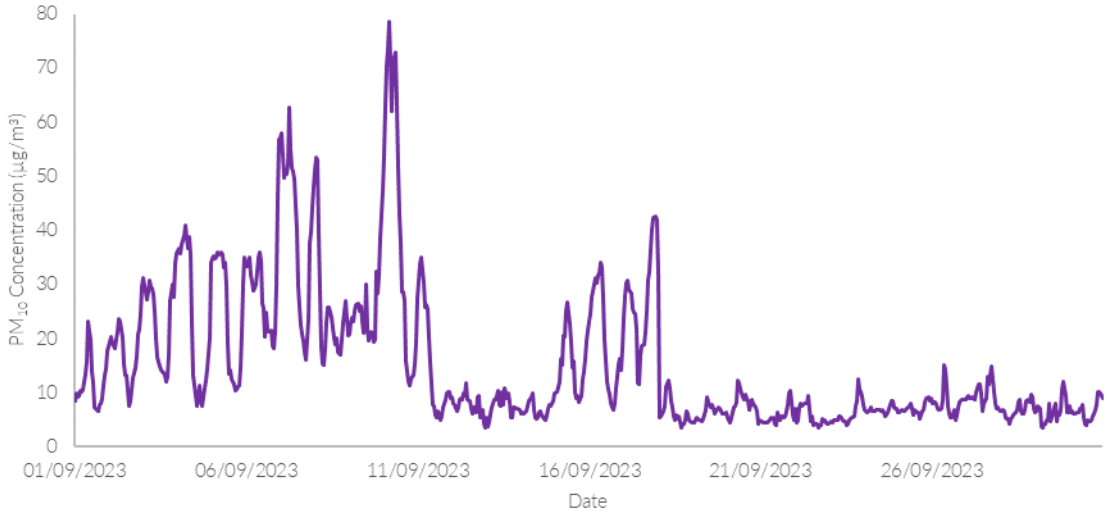


Figure 3: 1-Hour Average PM_{10} Concentrations at Monitoring Location 1.

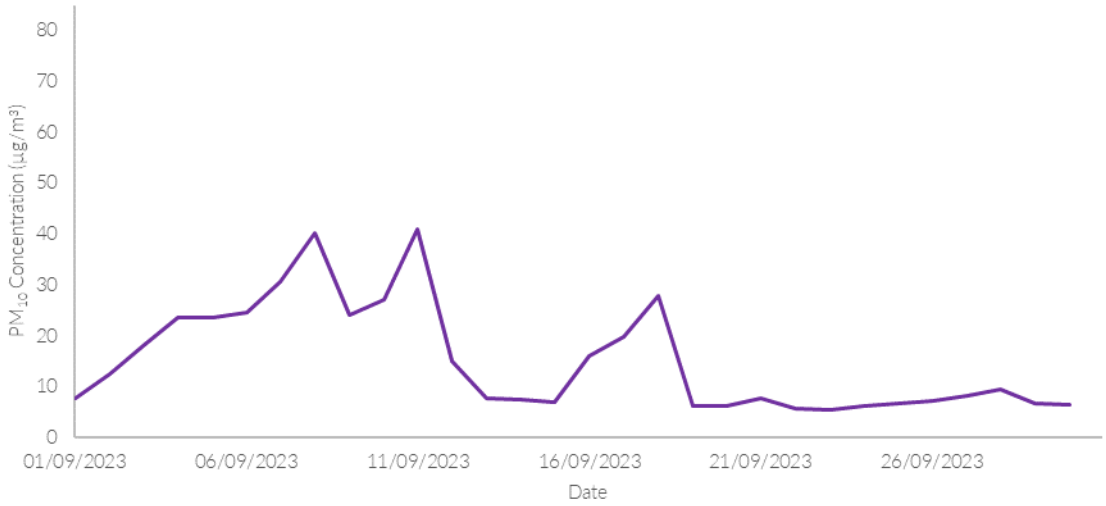


Figure 4: 24 Hour Average PM_{10} Concentrations at Monitoring Location 1.

Monitoring Location 2.

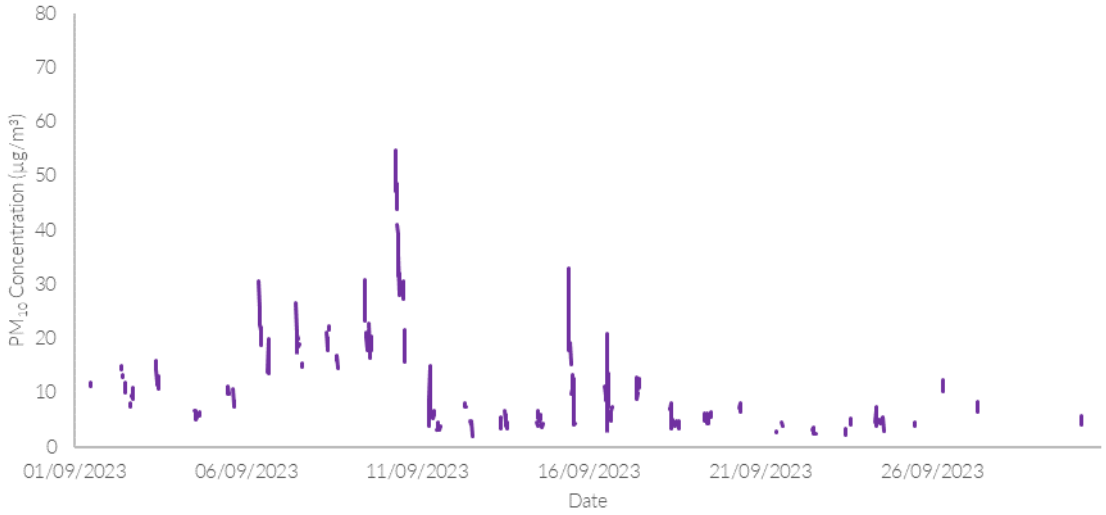


Figure 5: 15 Minute Average PM_{10} Concentrations at Monitoring Location 2.

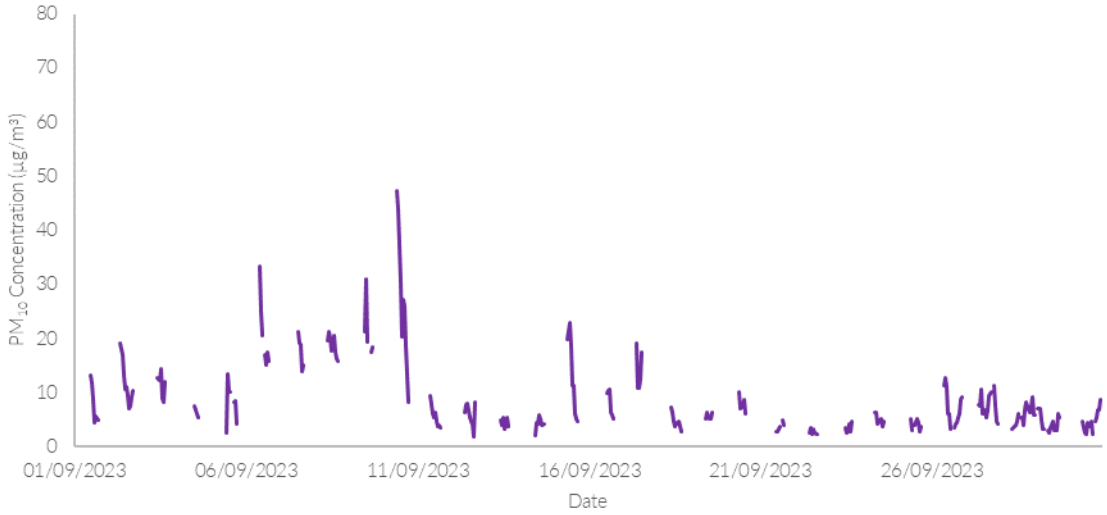


Figure 6: 1-hour Average PM_{10} Concentrations at Monitoring Location 2.

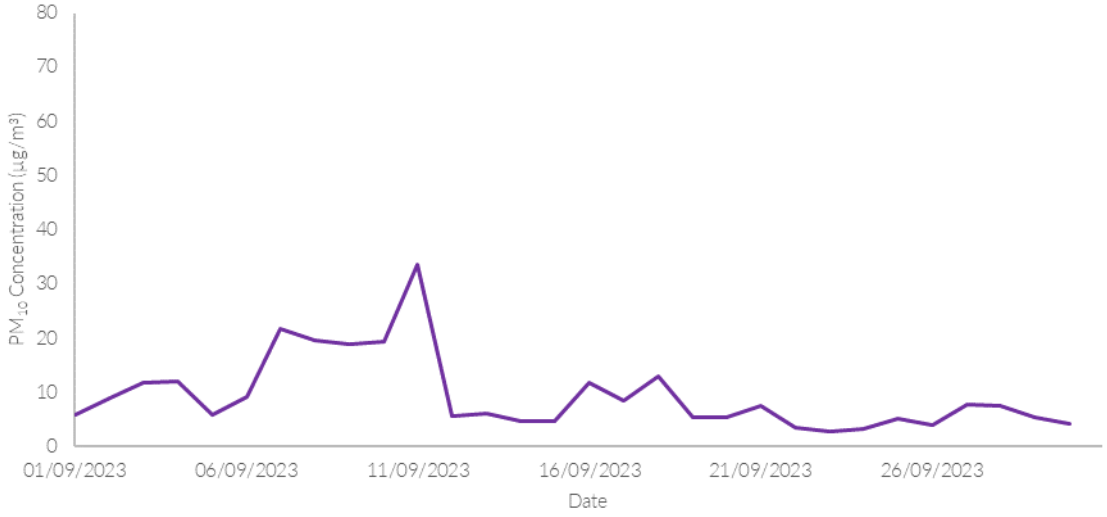


Figure 7: 24-hour Average PM_{10} Concentrations at Monitoring Location 2.

HOARE LEA

ANDY DAY
PRINCIPAL AIR QUALITY CONSULTANT

+44 20 3668 7289
andyday@hoarelea.com

HOARELEA.COM

Western Transit Shed
12-13 Stable Street
London
N1C 4AB
England