

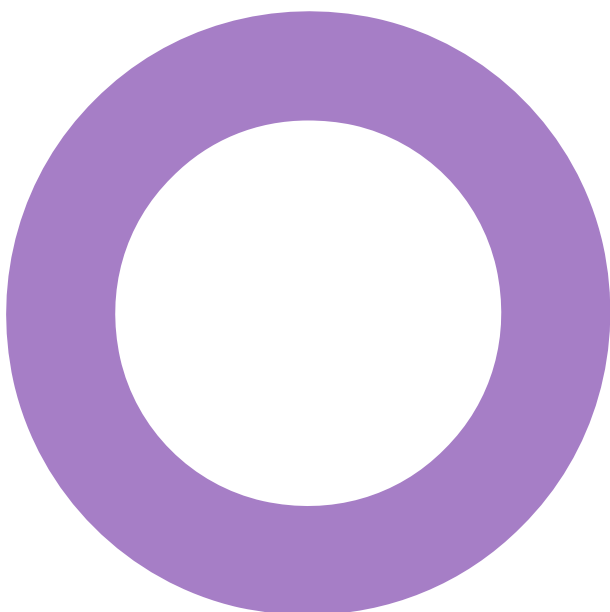
**Stephenson Way.
London.**
GPF Lewis Solutions Ltd.

AIR QUALITY

MONTHLY DUST MONITORING REPORT

01/11/2023 - 30/11/2023

REVISION 00 - 13 DECEMBER 2023



Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
00	13/12/2023	First Issue	AJ	RH	AD

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1. Introduction.

1.1 London Borough of Camden Requirements.

The London Borough of Camden (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.

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 (PM₁₀) 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 November 2023 to the 30th of November 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.

There have been no works taking place on-site during this monitoring period.

3. Monitoring Summary.

- There have been no exceedances of the 15 minute alert level, 15 minute action level, 1-hour action level or the 24-hour limit value at the.
- There have been no dust generating works on-site during this monitoring period.
- The 15 minute average data capture was 31.1% at monitoring location 1. The 15 minute average data capture was 8.6% at monitoring location 2.
- Both monitors have had limited solar power due to shorter hours of daylight. Additionally, as the sun is lower in the sky during winter, the impact of the surrounding buildings on overshadowing is increased. Therefore, lower solar power has led to losses in data capture. Alternative power supplies are being considered for subsequent periods prior to the beginning of construction activities on-site.

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 PM₁₀ 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 µg/m³ 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. The 15 minute average data capture at this location has reduced from 96.8% in October to 31.1% in November. This can be attributed to a lack of solar power due to overshadowing from the surrounding buildings. Additionally, as the sun is lower in the sky during winter, the impact of the surrounding buildings on overshadowing is increased. Therefore, lower solar power has led to losses in data capture. Alternative power supplies are being considered for subsequent periods prior to the beginning of construction activities on-site.

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 the surrounding buildings. During this period, the 15 minute average data capture from the monitor has been 8.6% based on hourly concentrations recorded between the 1st of November 2023 and the 30th of November 2023. Alternative power supplies are being considered for subsequent periods prior to the beginning of construction activities on-site.

4.3 Action Levels.

In line with the requirements of the planning condition, action levels have been set for monitored PM₁₀ concentrations on-site, above which steps must be taken to reduce and minimise the risk of dust-related impacts. Notification of exceedances of these levels will be automatically received by email to inform the on-site team. The 15 minute and 1-hour mean action levels are set out in Table 1 and is based on the Site Action Level provided within the most recent IAQM guidance, in addition to recommendations from LBoC.

Table 1: Action Level for PM₁₀.

Action Level	Concentration
Alert Level (as a 15 minute average)	150 µg/m ³
Action Level (as a 15 minute average)	250 µg/m ³
Action Level (as a 1-hour average)	190 µg/m ³

In addition to these levels, the 24-hour average limit value 50 µg/m³ 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 PM₁₀ 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 may be longer or shorter. It also highlights the data capture during the anticipated operational hours for when works will begin on-site.

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

Monitoring Period	Monitor 1 Data Capture		Monitor 2 Data Capture	
	24 Hour	During Operational Hours (08:00 – 18:00)	24 Hour	During Operational Hours (08:00 – 18:00)
01/11/2023 - 05/11/2023	74.0%	94.6%	9.0%	20.5%
06/11/2023 - 12/11/2023	25.6%	54.4%	8.2%	19.2%
13/11/2023 - 19/11/2023	18.9%	44.3%	7.7%	18.1%
20/11/2023 - 26/11/2023	22.6%	53.0%	10.4%	22.0%
27/11/2023 - 30/11/2023	23.7%	54.3%	11.5%	20.7%
Overall	31.1%	58.4%	8.6%	20.0%

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 PM₁₀ levels at monitoring location 1.

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

Monitoring Period	Maximum PM ₁₀ Concentration (µg/m³)	Minimum PM ₁₀ Concentration (µg/m³)	Average PM ₁₀ Concentration (µg/m³)	Number of Exceedances of 150 µg/m³ Alert Level (15 minute)	Number of Exceedances of 250 µg/m³ Action Level (15 minute)
01/11/2023 - 05/11/2023	75.5	3.1	8.4	0	0
06/11/2023 - 12/11/2023	22.6	3.3	8.0	0	0
13/11/2023 - 19/11/2023	97.0	3.7	9.7	0	0

Monitoring Period	Maximum PM ₁₀ Concentration (µg/m ³)	Minimum PM ₁₀ Concentration (µg/m ³)	Average PM ₁₀ Concentration (µg/m ³)	Number of Exceedances of 150 µg/m ³ Alert Level (15 minute)	Number of Exceedances of 250 µg/m ³ Action Level (15 minute)
20/11/2023 - 26/11/2023	40.3	2.9	10.3	0	0
27/11/2023 - 30/11/2023	35.0	5.5	15.1	0	0
Overall	97.0	2.9	9.5	0	0

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

Monitoring Period	Maximum PM ₁₀ Concentration (µg/m ³)	Minimum PM ₁₀ Concentration (µg/m ³)	Average PM ₁₀ Concentration (µg/m ³)	Number of Exceedances of 190 µg/m ³ Action Level (1-hour)
01/11/2023 - 05/11/2023	47.1	3.4	8.4	0
06/11/2023 - 12/11/2023	21.2	3.5	8.1	0
13/11/2023 - 19/11/2023	42.4	4.4	10.6	0
20/11/2023 - 26/11/2023	21.5	3.0	10.4	0
27/11/2023 - 30/11/2023	26.9	7.0	14.9	0
Overall	47.1	3.0	9.8	0

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

Monitoring Period	Maximum PM ₁₀ Concentration (µg/m ³)	Minimum PM ₁₀ Concentration (µg/m ³)	Average PM ₁₀ Concentration (µg/m ³)	Number of Exceedances of 50 µg/m ³ (24-hour)
01/11/2023 - 05/11/2023	12.6	6.2	8.3	0
06/11/2023 - 12/11/2023	9.7	4.9	7.0	0
13/11/2023 - 19/11/2023	16.3	6.2	11.1	0
20/11/2023 - 26/11/2023	14.1	4.1	8.7	0
27/11/2023 - 30/11/2023	18.6	10.1	14.1	0

Monitoring Period	Maximum PM ₁₀ Concentration (µg/m ³)	Minimum PM ₁₀ Concentration (µg/m ³)	Average PM ₁₀ Concentration (µg/m ³)	Number of Exceedances of 50 µg/m ³ (24-hour)
Overall	18.6	4.1	9.5	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 PM₁₀ 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 (µg/m ³)	Minimum PM ₁₀ Concentration (µg/m ³)	Average PM ₁₀ Concentration (µg/m ³)	Number of Exceedances of 150 µg/m ³ Alert Level (15 minute)	Number of Exceedances of 250 µg/m ³ Action Level (15 minute)
01/11/2023 - 05/11/2023	7.8	2.6	4.6	0	0
06/11/2023 - 12/11/2023	21.8	2.8	6.8	0	0
13/11/2023 - 19/11/2023	15.6	2.5	6.8	0	0
20/11/2023 - 26/11/2023	26.3	2.0	8.4	0	0
27/11/2023 - 30/11/2023	22.0	2.5	10.6	0	0
Overall	26.3	2.0	7.3	0	0

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

Monitoring Period	Maximum PM ₁₀ Concentration (µg/m ³)	Minimum PM ₁₀ Concentration (µg/m ³)	Average PM ₁₀ Concentration (µg/m ³)	Number of Exceedances of 190 µg/m ³ (1-hour)
01/11/2023 - 05/11/2023	7.8	2.8	4.7	0
06/11/2023 - 12/11/2023	20.3	3.1	6.7	0
13/11/2023 - 19/11/2023	13.9	3.3	6.4	0
20/11/2023 - 26/11/2023	26.3	2.1	7.7	0
27/11/2023 - 30/11/2023	17.3	3.5	10.3	0
Overall	26.3	2.1	6.8	0

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

Monitoring Period	Maximum PM ₁₀ Concentration (µg/m ³)	Minimum PM ₁₀ Concentration (µg/m ³)	Average PM ₁₀ Concentration (µg/m ³)	Number of Exceedances of 50 µg/m ³ (24-hour)
01/11/2023 - 05/11/2023	5.4	3.9	4.9	0
06/11/2023 - 12/11/2023	5.1	3.1	4.0	0
13/11/2023 - 19/11/2023	17.8	3.9	7.9	0
20/11/2023 - 26/11/2023	9.5	2.8	5.5	0
27/11/2023 - 30/11/2023	5.2	4.5	4.8	0
Overall	17.8	2.8	6.2	0

6. Dust Monitoring Conclusions.

6.1 Monitoring Location 1.

The results in Table 4 indicate that there has been no exceedance of the 15 minute alert level, 15 minute action level, or 1-hour action level during this monitoring period. The highest 1-hour average concentration recorded was $47.1 \mu\text{g}/\text{m}^3$ on the 4th of November 2023 at 10:00pm. 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 $18.6 \mu\text{g}/\text{m}^3$ on the 30th of November 2023. These concentrations can be attributed to natural variability of the background concentrations as there were no works being undertaken on during this period.

The 15 minute average overall data capture at this monitoring location has been 31.1% for this monitoring period. There has been a reduction in data capture from 74.0% between the 1st of November 2023 to the 5th of November 2023, to a low of 18.9% between the 13th of November 2023 to the 19th of November 2023. This can be attributed limited solar power being supplied to the monitor caused by a reduction of sunlight available due to shorter hours of daylight throughout the month. Additionally, as the sun is lower in the sky during winter, the impact of the surrounding buildings on overshadowing is increased. Therefore, lower solar power has led to losses in data capture. 15 minute average data capture was 58.4% during the anticipated operational hours of works on-site.

Alternative power supplies are being considered for subsequent periods prior to the beginning of construction activities on-site.

6.2 Monitoring Location 2.

The results in Table 7 indicate that there has been no exceedance of the 15 minute alert level, 15 minute action level, or 1-hour action level during this monitoring period. The maximum 1-hour concentration recorded was $26.3 \mu\text{g}/\text{m}^3$ on the 26th of November 2023 at 09:00am. 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 $17.8 \mu\text{g}/\text{m}^3$ on the 13th of November 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.

The 15 minute average overall data capture at this monitoring location has been 8.6% for this monitoring period. Data capture was highest between the 20th of November 2023 and the 26th of November 2023 at 9.4%, and lowest between the 13th of November 2023 and the 19th of November 2023 at 7.7%. This can be attributed limited solar power being supplied to the monitor caused by a reduction of sunlight available due to shorter hours of daylight throughout the month. Additionally, as the sun is lower in the sky during winter, the impact of the surrounding buildings on overshadowing is increased. Therefore, lower solar power has led to losses in data capture. 15 minute average data capture was 20.0% during the anticipated operational hours of works on-site.

Alternative power supplies are being considered for subsequent periods prior to the beginning of construction activities on-site.

Appendix 1 – Photographs of Installed Monitors.

Monitor Locations.

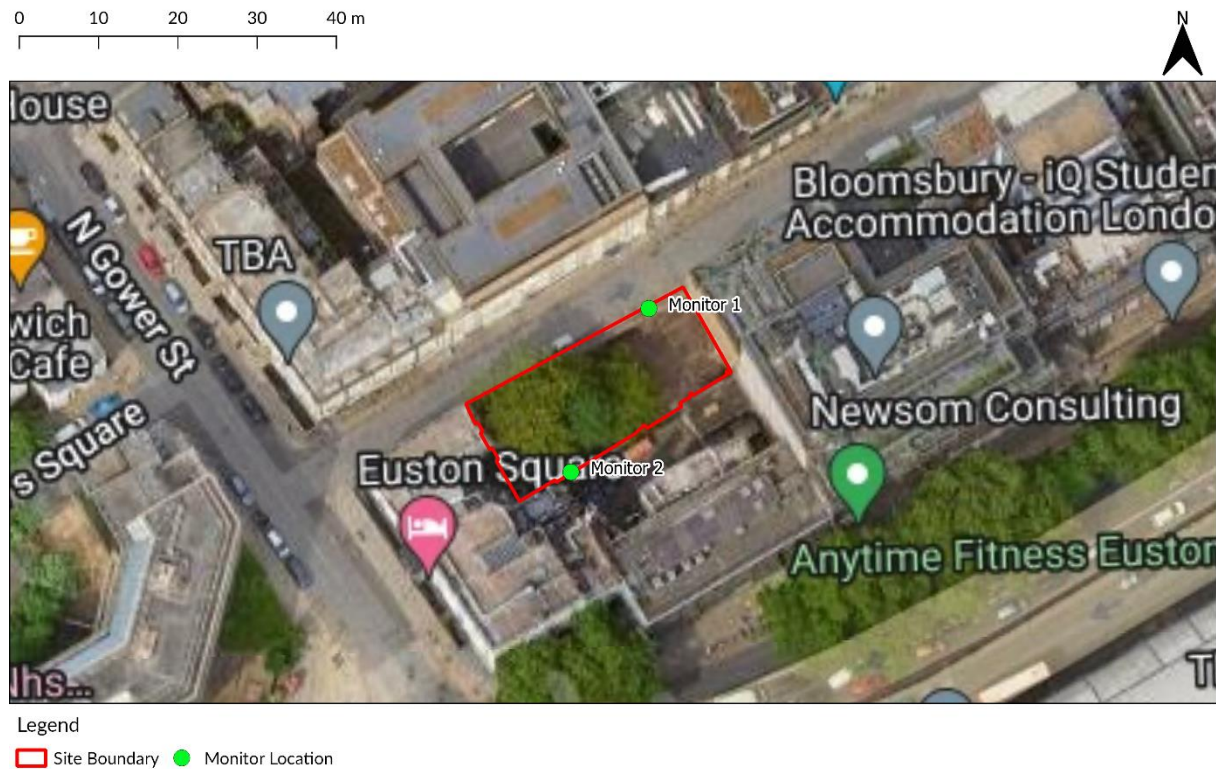
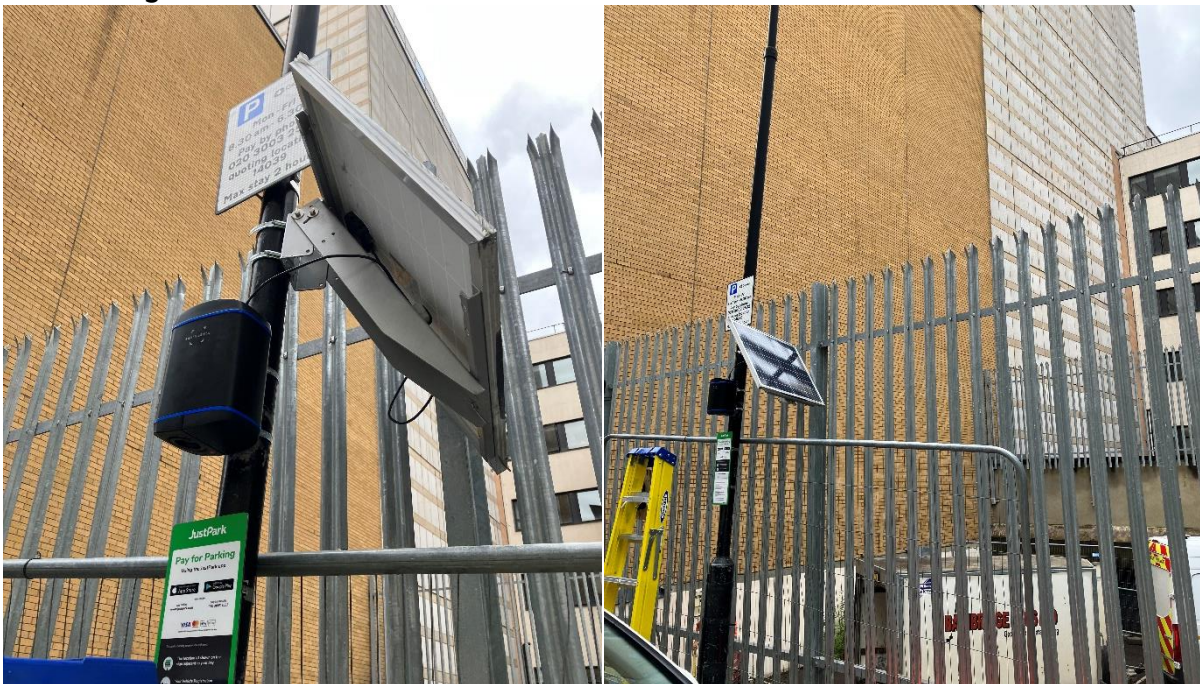
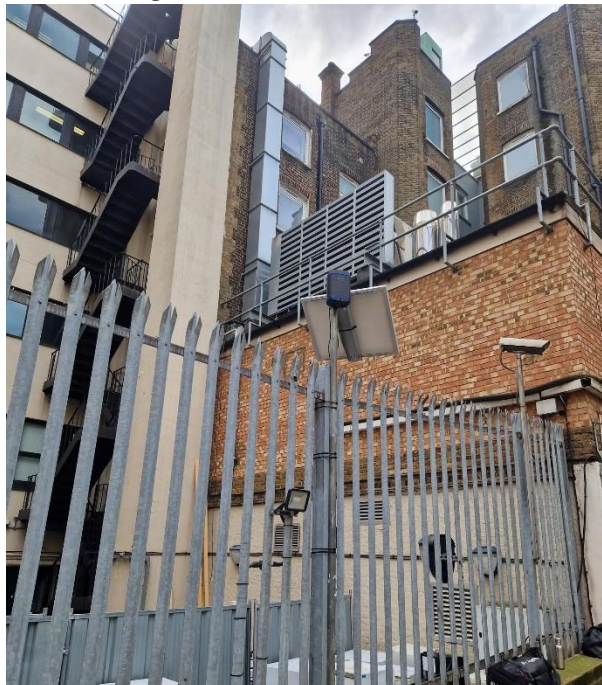


Figure 1: Locations of the EarthSense Zephyrs on the Site. Contains Google Maps Data (2023) [Retrieved 26/10/2023].

Monitoring Location 1



Monitoring Location 2



Appendix 2 – Dust Monitoring Graphs.

Monitoring Location 1.

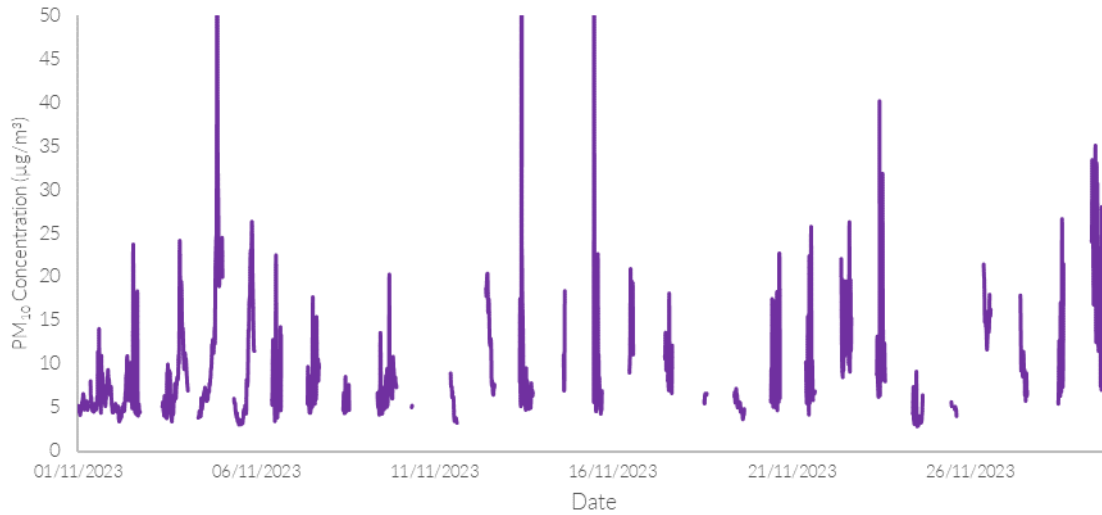


Figure 2: 15 Minute Average PM₁₀ Concentrations at Monitoring Location 1.

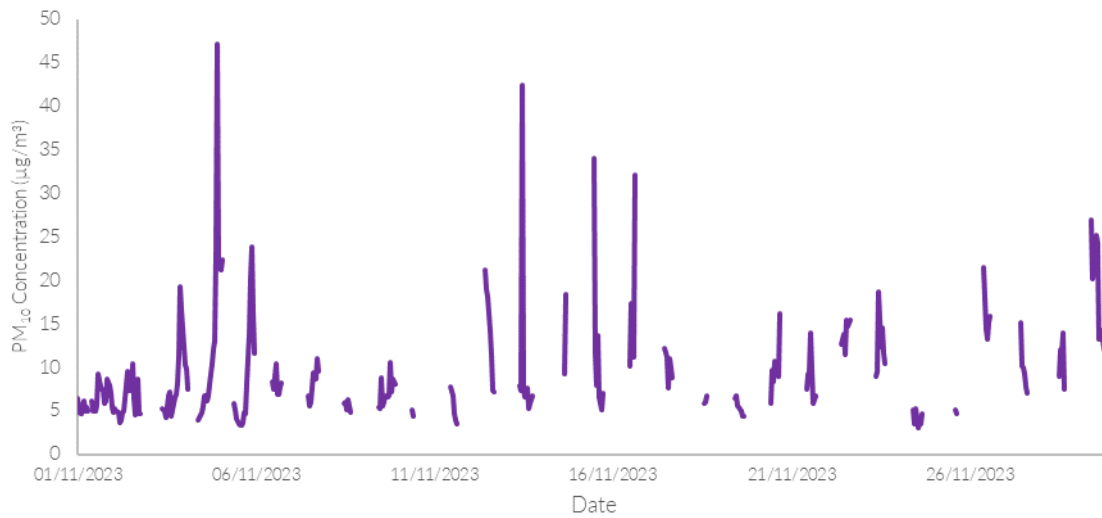


Figure 3: 1-Hour Average PM₁₀ Concentrations at Monitoring Location 1.

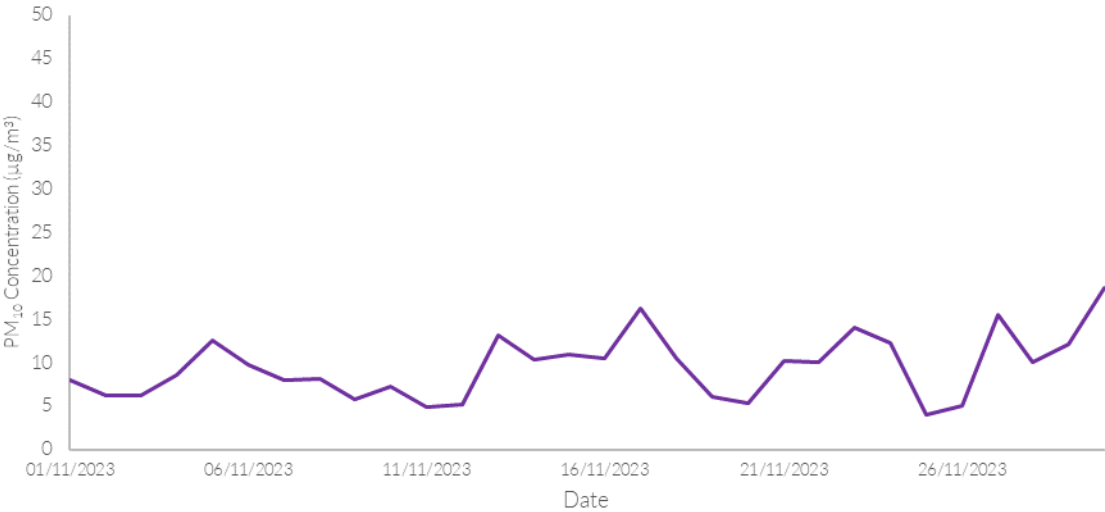


Figure 4: 24 Hour Average PM₁₀ Concentrations at Monitoring Location 1.

Monitoring Location 2.

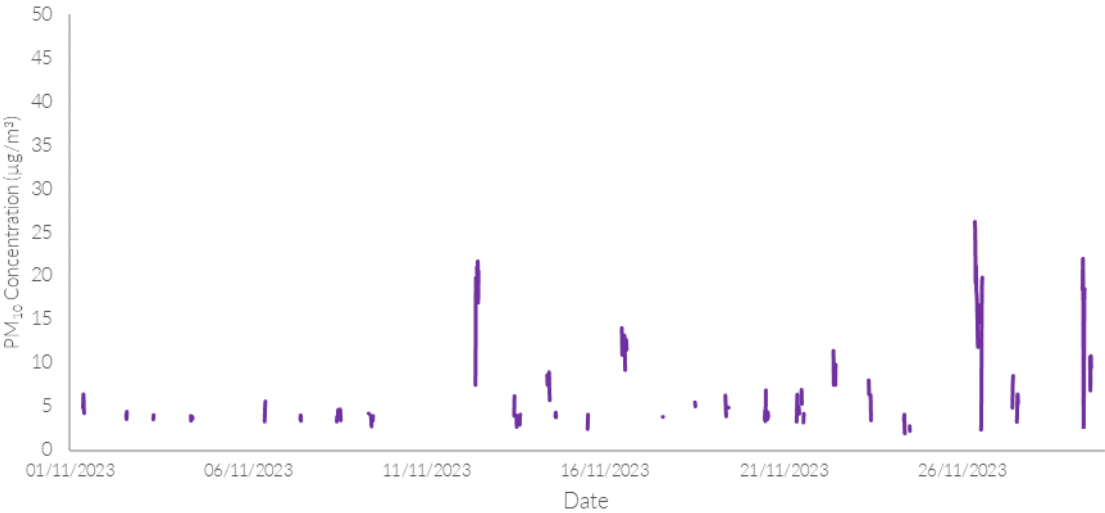


Figure 5: 15 Minute Average PM₁₀ Concentrations at Monitoring Location 2.

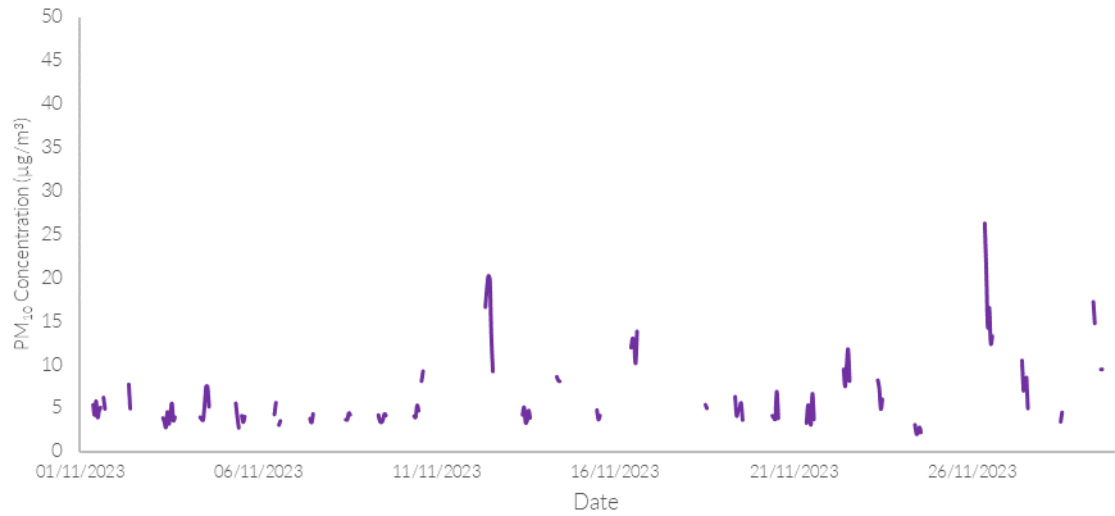


Figure 6: 1-hour Average PM₁₀ Concentrations at Monitoring Location 2.

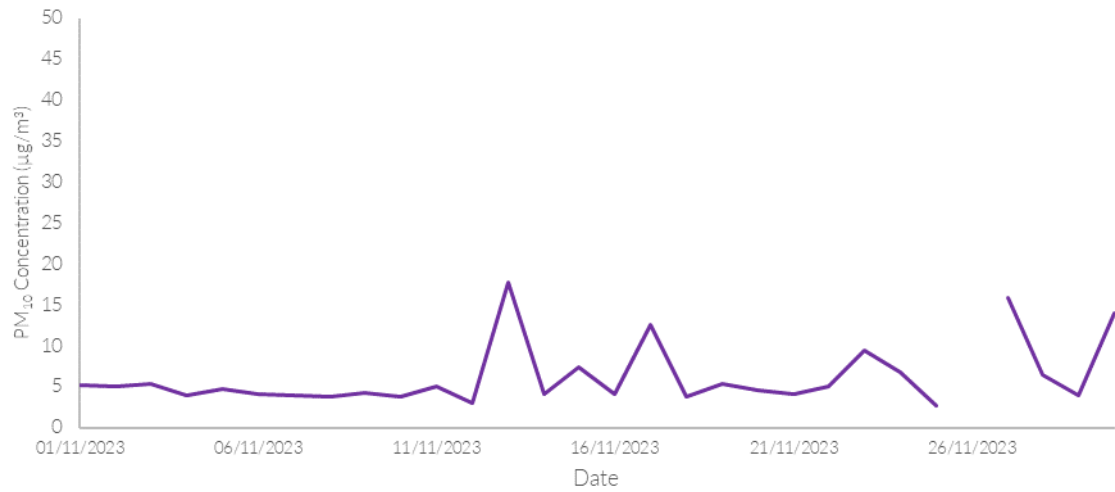


Figure 7: 24-hour Average PM₁₀ Concentrations at Monitoring Location 2.



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