Air Quality (PM10) Monitoring Report - Baseline

Monitoring Period: 29th October 2018 to 2nd December 2018

Client:	8 Build Limited
Project:	Stephenson House, 75 Hampstead Road, London
Document Ref.:	EEMC-AQMR-097/002- Stephenson House Rev00

Air Quality (PM10) Monitoring Report - Baseline

Monitoring Period: 29th October 2018 to 2nd December 2018

Project No.	**EEMC/097/2018**
Report No.	**EEMC-AQMR-097/002- Stephenson House Rev00**
Client:	**8Build Limited**
Title:	**EEMC/097/002 – Stephenson House Air Quality (PM10) Monitoring - Baseline Report No.02**
Monitoring Period:	**29th October 2018 to 2nd December 2018**

Details of Air Quality (PM10) Monitors

ID Reference	**RP1**
Location:	**2nd Floor Balcony of Stephenson House facing Hampstead Road (East)**
Instrument:	**TSI DustTrak II (PM10)**
Serial Number:	**8542183401**
Manufacturers last calibration date:	**21/08/2018** (Copy of Calibration Certificate in Appendix 1)
Installation Date:	**27/09/2018**

ID Reference	**RP2**
Location:	**2nd Floor Balcony of Stephenson House facing Drummond Street (South)**
Instrument:	**TSI DustTrak II (PM10)**
Serial Number:	**8542183404**
Manufacturers last calibration date:	**22/08/2018** (Copy of Calibration Certificate in Appendix 1)
Installation Date:	**27/09/2018**

Author:	**Reviewer:**
M. Robinson	
Matthew Robinson BSc (Hons) MIOA **Senior Consultant** **Date:** 06/12/2018	Ian Hooper MSc IEng MIOA **Principal Consultant** **Date:** 06/12/2018

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1.0 Introduction

European Environmental Monitoring and Consultancy (EEMC) Limited have been appointed by 8Build Limited to undertake the monitoring of baseline for air quality (PM10) prior to commencement of demolition and construction works at Stephenson House, 75 Hampstead Road. The Stephenson Road project is in the London Borough of Camden and is bounded by Hampstead Road to the east and Drummond Street to the south.

This report presents the measured and recorded unattended baseline air quality (PM10) monitoring data for the period 29th October 2018 to 2nd December 2018.

2.0 Context

The purpose of the air quality (PM10) monitoring works are is to show compliance with and to discharge planning condition 30 as set out in the Camden decision notice below, planning ref: **2017/3518/P**

"Air quality monitoring should be implemented on 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 A1, CC1, CC2 and CC3 of the Camden Local Plan 2017."

The Air Quality Assessment (AQA) carried out at the planning stage determined a summary of Impact Risks as set out below:

Stage	Impact Risk		
	Nuisance Dust	**Ecology**	**PM10**
Demolition	**Medium Risk**	Negligible	Low Risk
Earthworks	Negligible	Negligible	Negligible
Construction	**Medium Risk**	Negligible	Low Risk
Trackout	Low Risk	Negligible	Negligible

The AQA also provides the following guidance:
"Overall, the development is considered to be Medium Risk for nuisance dust soiling effects and Low Risk for PM10 health effects, in the absence of mitigation."

Guidance and policy is set out in the IAQM "*Guidance on Air Quality Monitoring in the Vicinity of Demolition and Construction Sites*" 2012, and the Mayor of London, Supplementary Planning Guidance "*THE CONTROL OF DUST AND EMISSIONS DURING CONSTRUCTION AND DEMOLITION SPG*" July 2014. For Medium Risk sites "*a minimum of two automatic particulate monitors to measure PM10 levels*" are required and that *"it will normally be necessary to undertake baseline monitoring for a minimum period of three months*".

8Build will carry out their site operations in compliance with the applicable guidance and where possible implementing the mitigation measures outlined in the AQA.

The proposed PM10 trigger and action levels for PM10 concentrations in 15minute mean periods during the works are set out below and are based on the Mayor of London SPG and IAQM guidance mentioned above.

- Trigger Level: 150micrograms/m-3 (150µg/m^3)

- Action level: 250micrograms/m-3 (250µg/m^3)

Site operations are limited to 08:00-18:00 hours Monday to Friday and 08:00-13:00 on Saturdays.

Note: *It may be necessary to reassess these limits in the light of new and updated guidance, which suggests an Action Levels of 190 micrograms/m-3 (150µg/m-3) over a 1hr mean may recommended. (IAQM Guidance Oct 2018 v1.1)*

3.0 Instrumentation

Two TSI Dust Trak II (PM10) Monitors have been deployed to undertake baseline unattended monitoring (PM10). A map showing the location of the monitors is show in in Figure 1. Photographs showing the equipment installed at locations RP1 and RP2 are shown in Image 1 and Image 2 below.

The monitors were installed on site on Thursday 27th September 2018.

The monitors are housed in weather-resistant environmental enclosures and installed at elevations agreed between 8 Build and the London Borough of Camden. Each system is fitted with a modem to allow remote access to measurement data on the internet. The monitors record PM10 (µg/m^3) contiguously over 15-minute average periods.

The Monitor installed are as below:

- **RP1** - TSI Dust Trak II (PM10) MCerts approved light scatter nephelometer, serial no. 8542183401

- **RP2** - TSI Dust Trak II (PM10) MCerts approved light scatter nephelometer, serial no. 8542183404

A copy of the calibration certificates are attached in Appendix 1.

4.0 Measurement Results

The results of the air quality (PM10) measurements are presented graphically in Section 4.1 below.

Figure 1: Map of Monitor Locations:

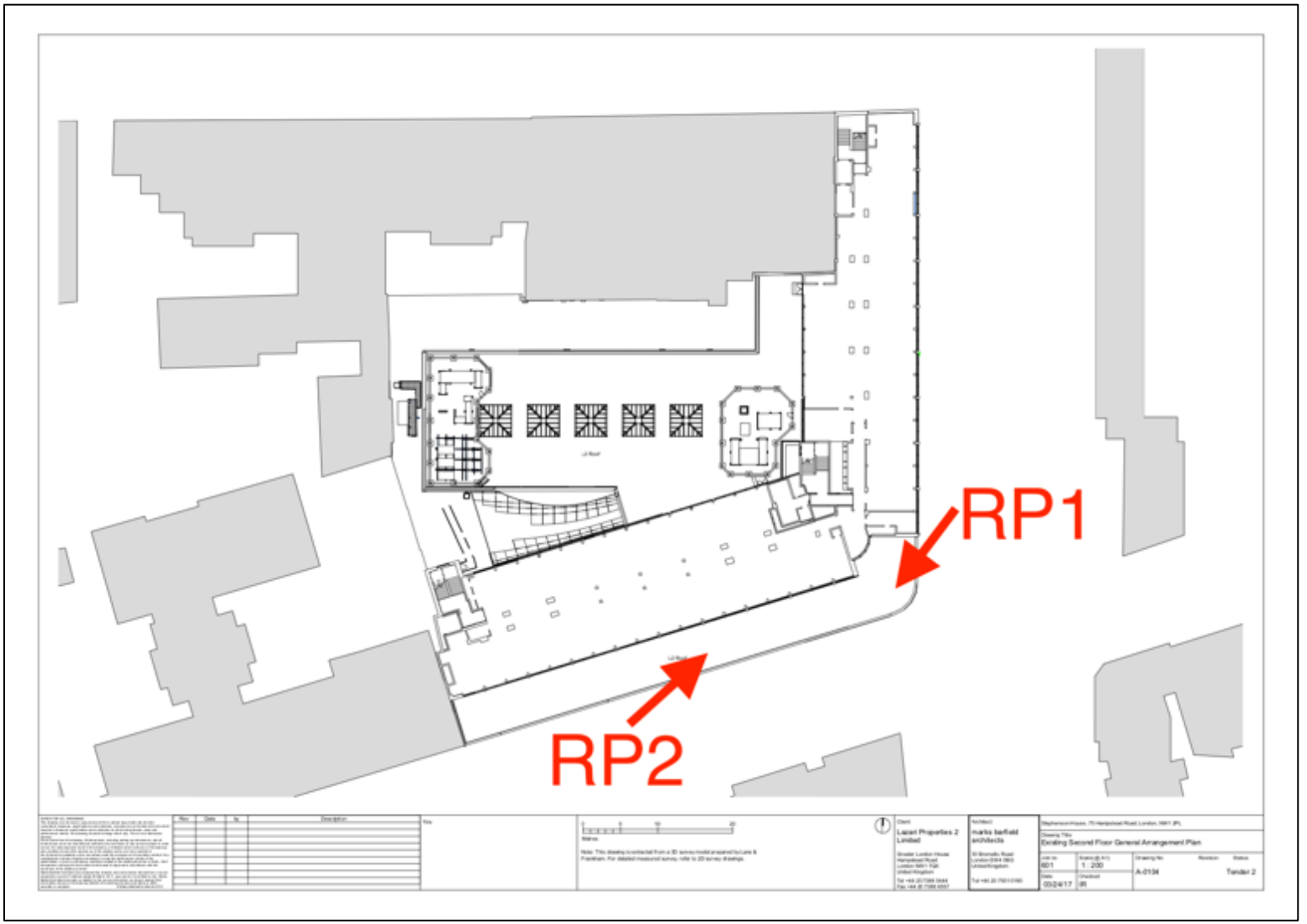


Image 1: Photograph of RP1 Monitor:

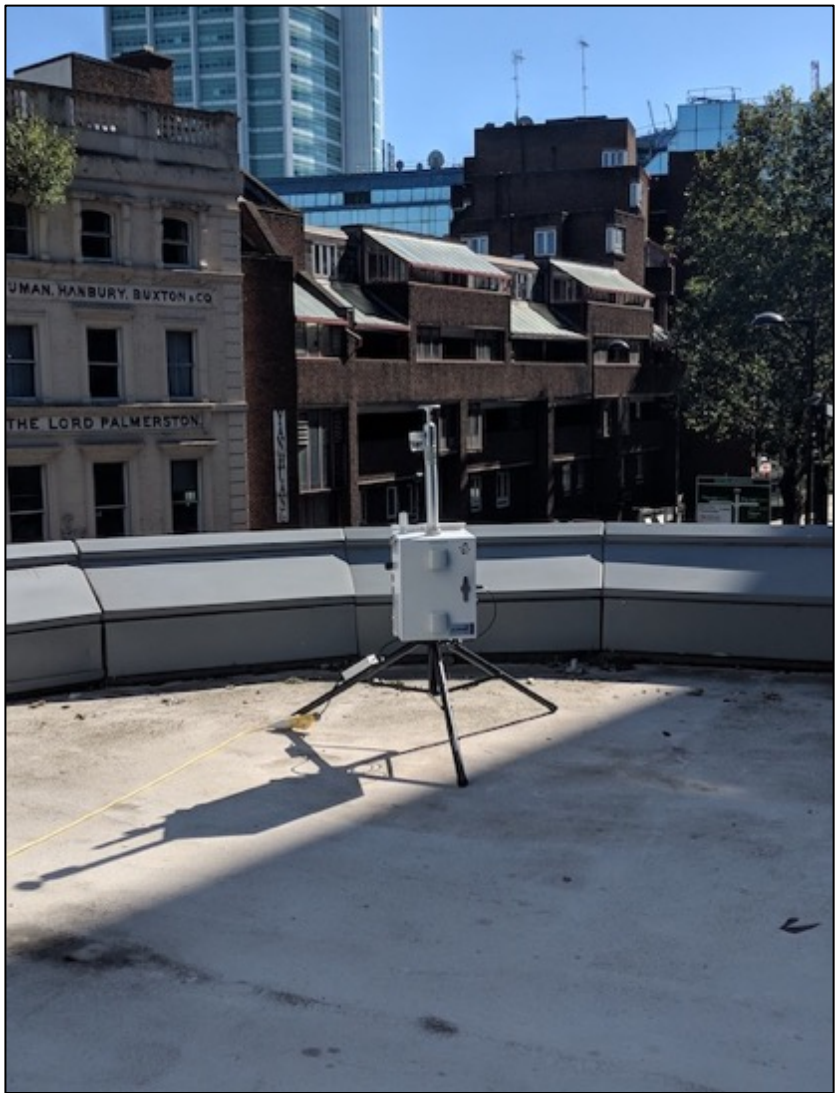
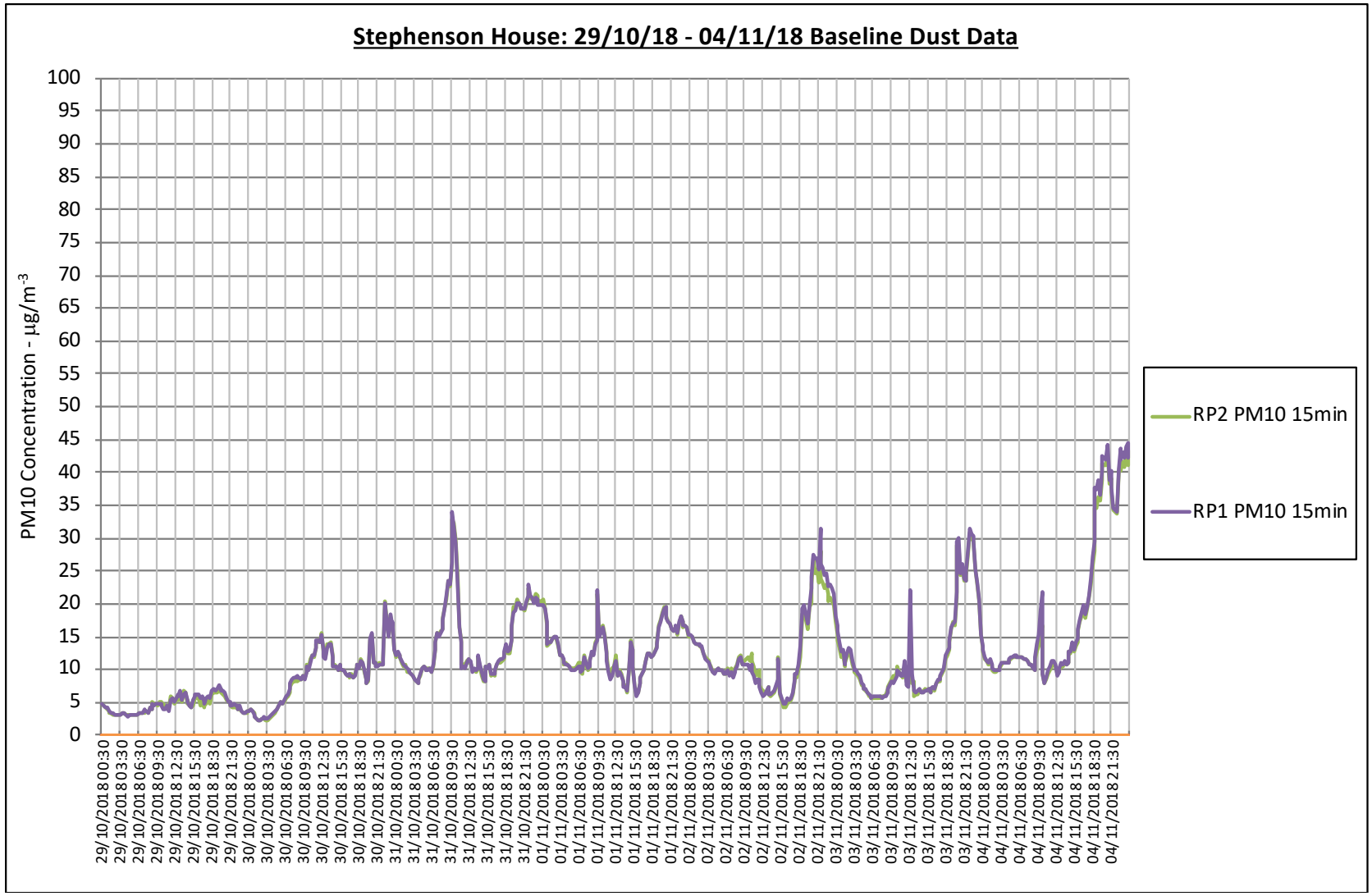
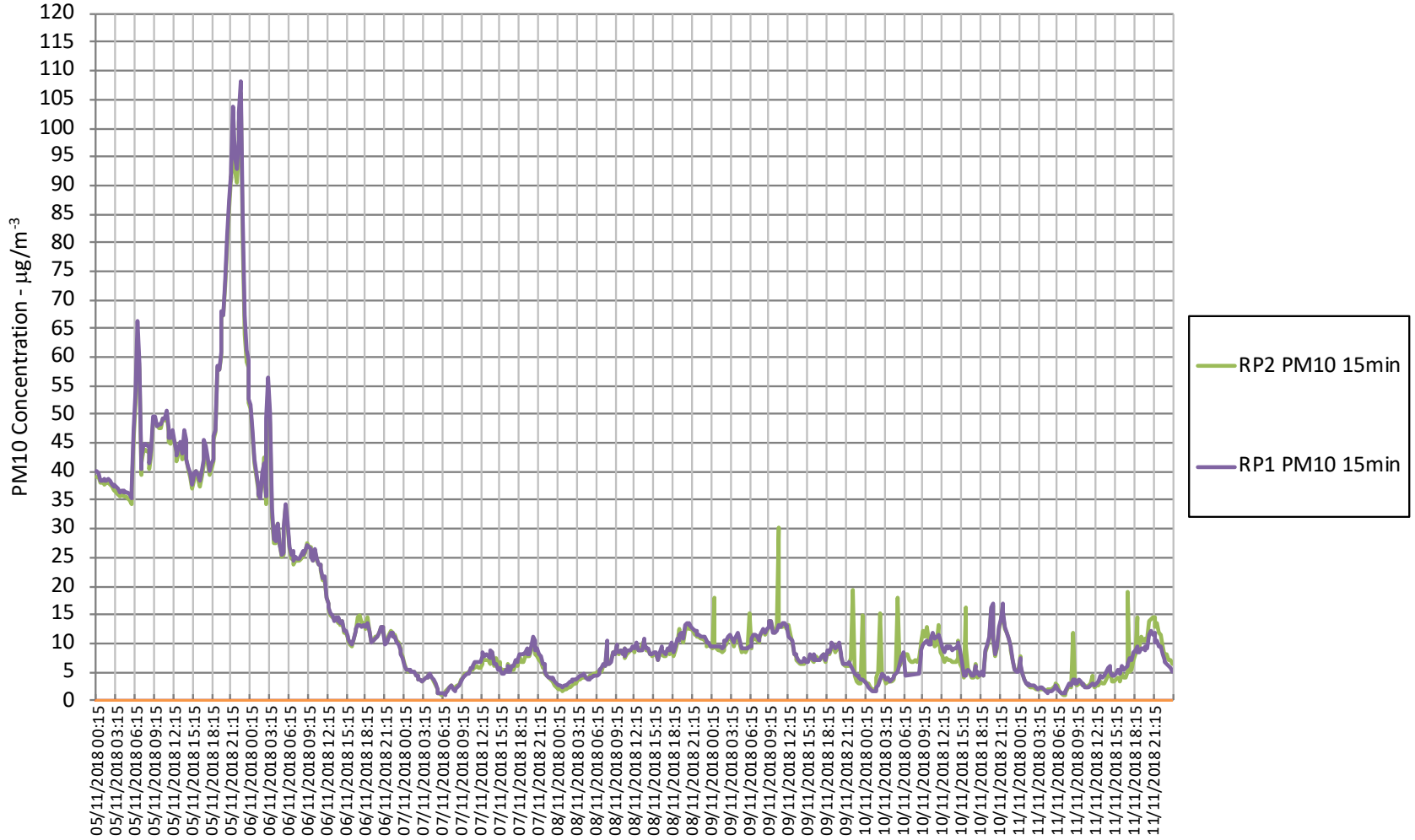


Image 2: Photograph of RP2 Monitor:

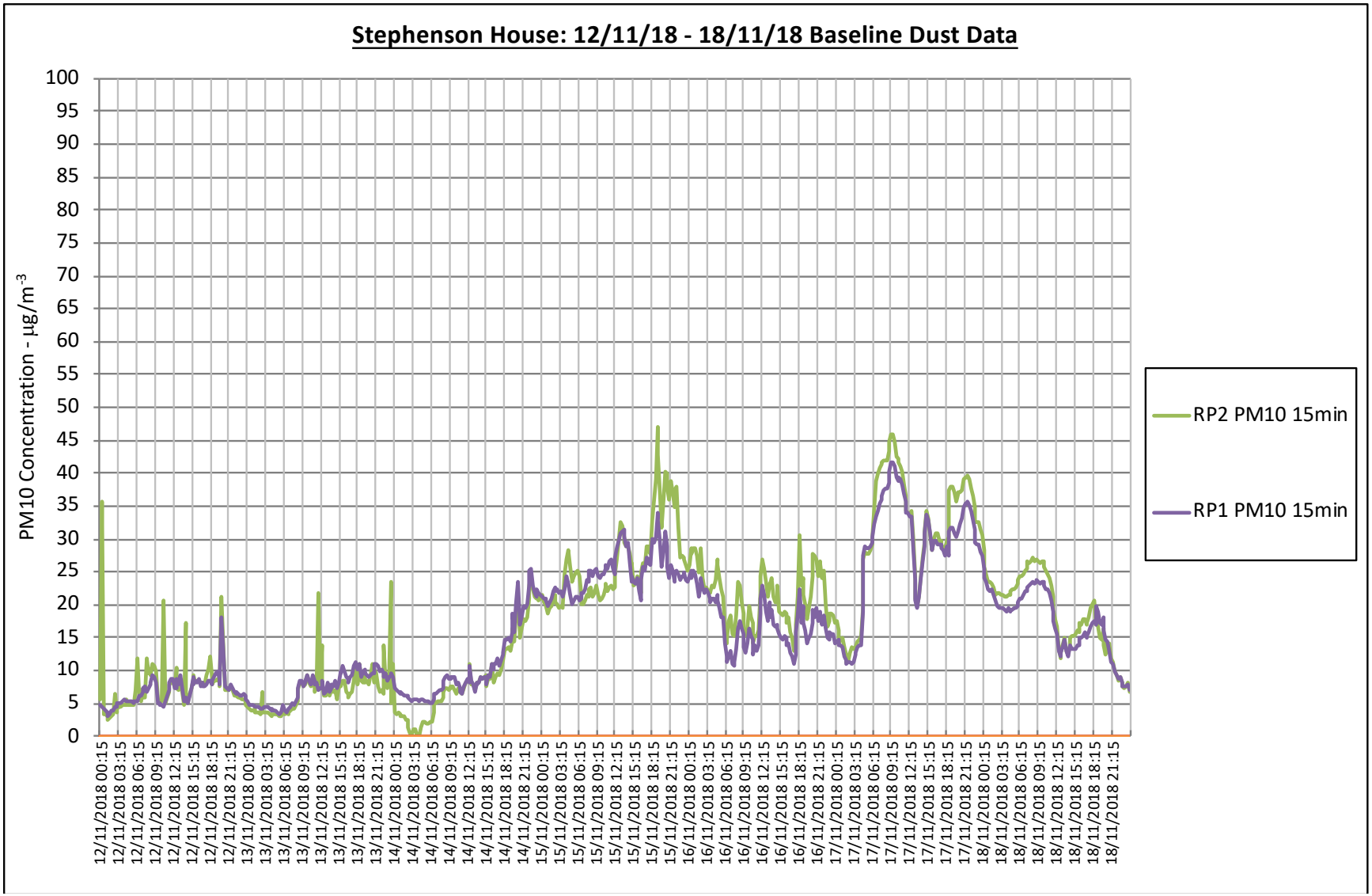
4.2 Air Quality (PM10) Monitoring Graphs

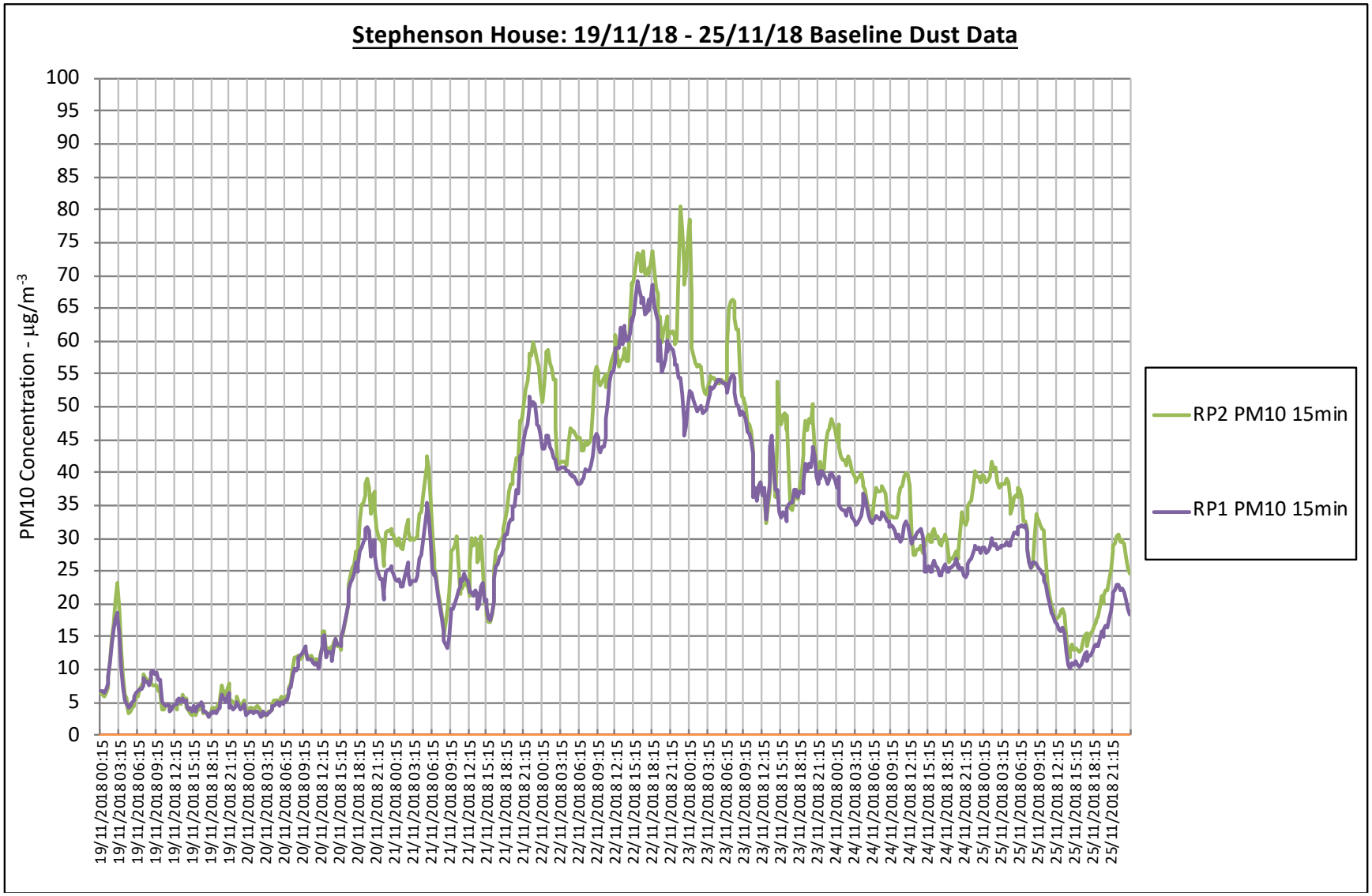


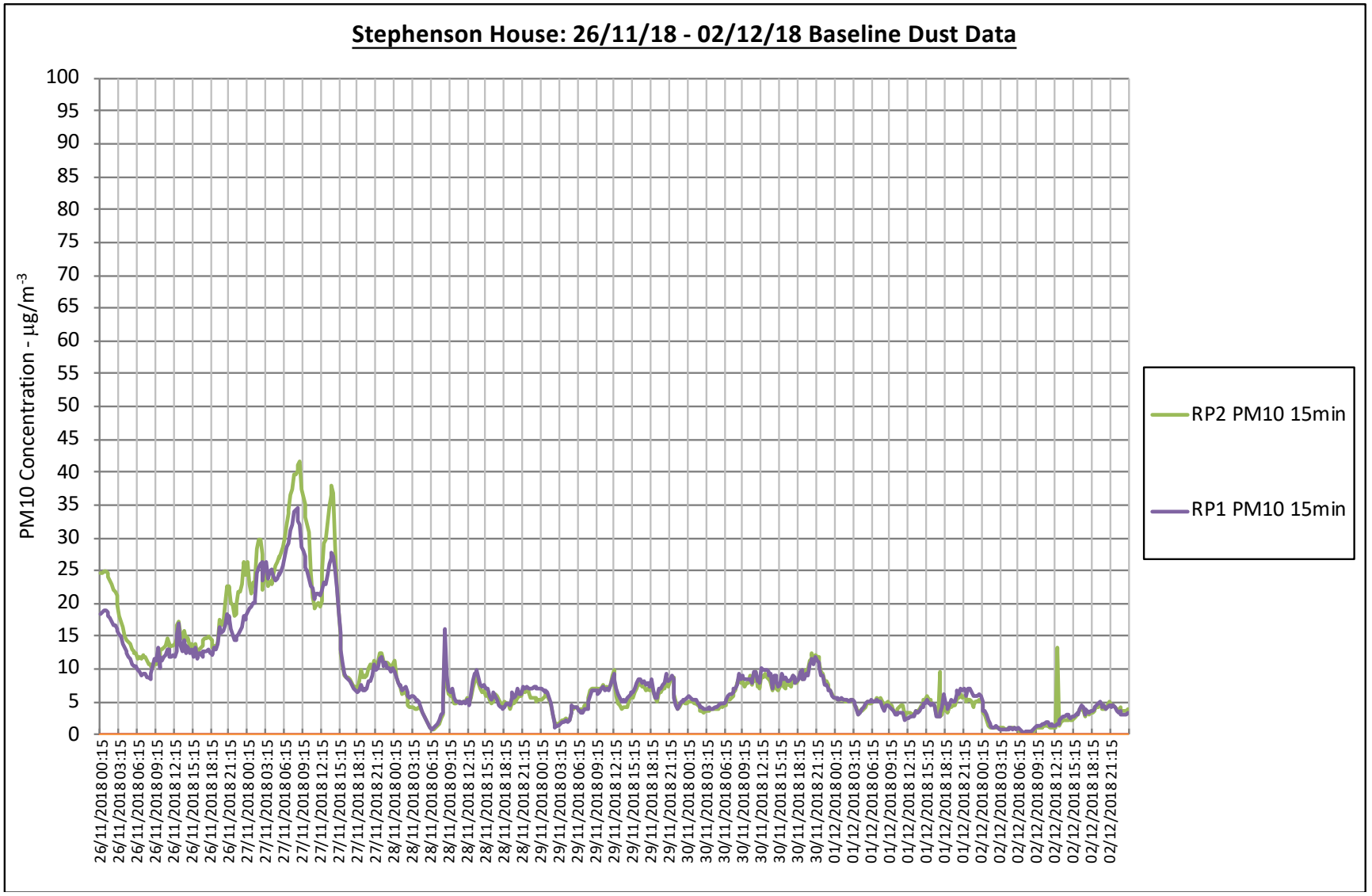
Stephenson House: 05/11/18 - 11/11/18 Baseline Dust Data



Note: X-axis scale change due to higher level readings on 5th November – likely associated with celebration of Bonfire Night


Stephenson House: 12/11/18 - 18/11/18 Baseline Dust Data
PM10 Concentration - µg/m-3
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
12/11/2018 00:15
12/11/2018 03:15
12/11/2018 06:15
12/11/2018 09:15
12/11/2018 12:15
12/11/2018 15:15
12/11/2018 18:15
12/11/2018 21:15
13/11/2018 00:15
13/11/2018 03:15
13/11/2018 06:15
13/11/2018 09:15
13/11/2018 12:15
13/11/2018 15:15
13/11/2018 18:15
13/11/2018 21:15
14/11/2018 00:15
14/11/2018 03:15
14/11/2018 06:15
14/11/2018 09:15
14/11/2018 12:15
14/11/2018 15:15
14/11/2018 18:15
14/11/2018 21:15
15/11/2018 00:15
15/11/2018 03:15
15/11/2018 06:15
15/11/2018 09:15
15/11/2018 12:15
15/11/2018 15:15
15/11/2018 18:15
15/11/2018 21:15
16/11/2018 00:15
16/11/2018 03:15
16/11/2018 06:15
16/11/2018 09:15
16/11/2018 12:15
16/11/2018 15:15
16/11/2018 18:15
16/11/2018 21:15
17/11/2018 00:15
17/11/2018 03:15
17/11/2018 06:15
17/11/2018 09:15
17/11/2018 12:15
17/11/2018 15:15
17/11/2018 18:15
17/11/2018 21:15
18/11/2018 00:15
18/11/2018 03:15
18/11/2018 06:15
18/11/2018 09:15
18/11/2018 12:15
18/11/2018 15:15
18/11/2018 18:15
18/11/2018 21:15
RP2 PM10 15min
RP1 PM10 15min


Stephenson House: 19/11/18 - 25/11/18 Baseline Dust Data
PM10 Concentration - µg/m-3
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
19/11/2018 00:15
19/11/2018 03:15
19/11/2018 06:15
19/11/2018 09:15
19/11/2018 12:15
19/11/2018 15:15
19/11/2018 18:15
19/11/2018 21:15
20/11/2018 00:15
20/11/2018 03:15
20/11/2018 06:15
20/11/2018 09:15
20/11/2018 12:15
20/11/2018 15:15
20/11/2018 18:15
20/11/2018 21:15
21/11/2018 00:15
21/11/2018 03:15
21/11/2018 06:15
21/11/2018 09:15
21/11/2018 12:15
21/11/2018 15:15
21/11/2018 18:15
21/11/2018 21:15
22/11/2018 00:15
22/11/2018 03:15
22/11/2018 06:15
22/11/2018 09:15
22/11/2018 12:15
22/11/2018 15:15
22/11/2018 18:15
22/11/2018 21:15
23/11/2018 00:15
23/11/2018 03:15
23/11/2018 06:15
23/11/2018 09:15
23/11/2018 12:15
23/11/2018 15:15
23/11/2018 18:15
23/11/2018 21:15
24/11/2018 00:15
24/11/2018 03:15
24/11/2018 06:15
24/11/2018 09:15
24/11/2018 12:15
24/11/2018 15:15
24/11/2018 18:15
24/11/2018 21:15
25/11/2018 00:15
25/11/2018 03:15
25/11/2018 06:15
25/11/2018 09:15
25/11/2018 12:15
25/11/2018 15:15
25/11/2018 18:15
25/11/2018 21:15
RP2 PM10 15min
RP1 PM10 15min


Stephenson House: 26/11/18 - 02/12/18 Baseline Dust Data
PM10 Concentration - µg/m-3
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
15
10
5
0
RP2 PM10 15min
RP1 PM10 15min

4.2 Summary of Air Quality (PM10) - 24 hour Average

A summary of measurement data at RP1 and RP2 shown as 24 hour average values is summarised below in Table 1:

Date	RP1 (µg/m^3)	RP2 (µg/m^3)
29/10/2018	4.7	4.5
30/10/2018	9.2	9.2
31/10/2018	14.4	14.3
01/11/2018	12.8	12.9
02/11/2018	12.8	12.5
03/11/2018	12.2	11.9
04/11/2018	19.5	18.9
05/11/2018	50.8	49.8
06/11/2018	21.5	21.2
07/11/2018	5.3	5.1
08/11/2018	7.9	7.6
09/11/2018	9.2	9.5
10/11/2018	7.5	7.7
11/11/2018	4.9	5.3
12/11/2018	6.8	7.6
13/11/2018	7.4	6.9
14/11/2018	10.7	8.9
15/11/2018	24.8	26.4
16/11/2018	17.3	21.1
17/11/2018	28.5	30.7
18/11/2018	17.3	18.9
19/11/2018	6.3	6.4
20/11/2018	14.5	16.3
21/11/2018	27.8	32.4
22/11/2018	51.7	57.8
23/11/2018	43.7	48.2
24/11/2018	30.0	34.7
25/11/2018	21.4	26.5
26/11/2018	13.6	16.2
27/11/2018	19.2	21.6
28/11/2018	5.8	5.3
29/11/2018	5.8	5.5
30/11/2018	7.5	7.2
01/12/2018	4.7	4.6
02/12/2018	2.4	2.4
Daily Mean	***16.0***	***16.0***

Table 1 – Summary of 24-hour averages

5.0 Discussion & Summary

Unattended baseline air quality (PM10) monitoring has been undertaken at Stephenson House project, prior to commencement of demolition and construction works.

This report presents the measured and recorded air quality (PM10) concentrations measured and recorded at monitoring positions RP1 and RP2 from 29th October to 2nd December 2018. The data provides the ambient baseline PM10 levels at each location.

PM10 concentrations during this period are below the proposed Trigger and Action levels.

PM10 data from the London Air Quality Network (LAQN) is available for public access. The nearest measurement locations to Stephenson House are shown below, with the average daily (24 hour) mean PM10 concentration in ug/m^3 between 01-Nov-2018 and 02-Dec-2018.

Site Code	Site Name	Result (µg/m^3)
CD1	Camden – Swiss Cottage	22.3
CD9	Camden – Euston Road	24.0
MY7	Westminster – Marylebone Road FDMS	26.1

This data is supplied by the LAQN with the following caveats.

- ***Warning:*** *Camden - Euston Road - Warning: Calculation included provisional data. Data after 16 Feb 2018 have not been fully ratified.*
- ***Warning:*** *Camden - Swiss Cottage - Warning: Calculation included provisional data. Data after 31 Dec 2017 have not been fully ratified.*
- ***Warning:*** *Westminster - Marylebone Road FDMS - Warning: Calculation included provisional data. Data after 31 Dec 2017 have not been fully ratified.*

Appendix 1 – Copy of Calibration Certificate

RP1 Unit – TSI DustTrak II (PM10) 8542183401:

CERTIFICATE OF CALIBRATION AND TESTING

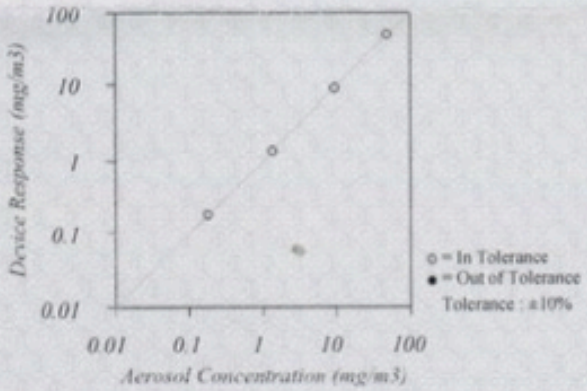
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

Environment Conditions		
Temperature	74.1 (23.4)	°F (°C)
Relative Humidity	50	%RH
Barometric Pressure	29.15 (987.1)	inHg (hPa)

Model	8542-M
Serial Number	8542183401

☒ As Left ☐ As Found
☒ In Tolerance ☐ Out of Tolerance

Concentration Linearity Plot



System ID: DTII01-01

FLOW AND PRESSURE VERIFICATION — SYSTEM DTII01-01

Parameter	Standard	Measured	Allowable Range	Parameter	Standard	Measured	Allowable Range
Flow lpm	3.00	3.03	2.85 ~ 3.15	Pressure kPa	98.8	98.8	93.86 ~ 103.74

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been nominally adjusted to respirable mass per standard ISO 12103-1, A1 test dust (Arizona dust). Our calibration ratio is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due
Photometer	E003433	03-13-18	09-30-18
DC Voltage(Keithley)	E002859	09-21-17	09-30-18
Temp/Humidity	E005409	10-19-17	10-31-18
Pressure	E003440	07-24-18	07-31-19
3 um PSL	180387	n/a	n/a

Measurement Variable	System ID	Last Cal.	Cal. Due
Flowmeter	E002371	03-08-18	03-31-19
Microbalance	M001324	11-02-16	11-30-18
Temp/Humidity	E005410	10-19-17	10-31-18
1 um PSL	698880	n/a	n/a
10 um PSL	187001	n/a	n/a

Juan Cornejo
Calibrated

August 21, 2018
Date

RP2 Unit – TSI DustTrak II (PM10) 8542183404:

TSI P/N 2300157

CERTIFICATE OF CALIBRATION AND TESTING

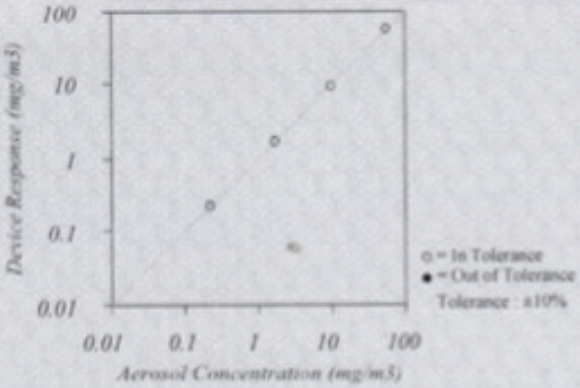
TSI Incorporated, 500 Cardigan Road, Shoreview, MN 55126 USA
Tel: 1-800-874-2811 1-651-490-2811 Fax: 1-651-490-3824 http://www.tsi.com

Environment Conditions		
Temperature	74.5 (23.6)	°F (°C)
Relative Humidity	43	%RH
Barometric Pressure	29.22 (989.5)	inHg (hPa)

Model	8542-M
Serial Number	8542183404

☒ As Left ☐ As Found
☒ In Tolerance ☐ Out of Tolerance

Concentration Linearity Plot



System ID: DTII01-01

FLOW AND PRESSURE VERIFICATION — **SYSTEM DTII01-01**

Parameter	Standard	Measured	Allowable Range	Parameter	Standard	Measured	Allowable Range
Flow lpm	3.00	3.07	2.85 ~ 3.15	Pressure kPa	99.1	99.1	94.12 ~ 104.02

TSI Incorporated does hereby certify that all materials, components, and workmanship used in the manufacture of this equipment are in strict accordance with the applicable specifications agreed upon by TSI and the customer and with all published specifications. All performance and acceptance tests required under this contract were successfully conducted according to required specifications. There is no NIST standard for optical mass measurements. Calibration of this instrument performed by TSI has been done using emery oil and has been maintainly adjusted to respirable mass per standard ISO 12103-1, A1 test dust. Our calibration uncertainty is greater than 1.2:1

Measurement Variable	System ID	Last Cal.	Cal. Due
Photometer	E003433	03-13-18	09-30-18
DC Voltage(Keithley)	E002455	08-21-18	08-31-19
Temp/Humidity	E005409	10-19-17	10-31-18
Pressure	E003440	07-24-18	07-31-19
3 um PSL	180387	n/a	n/a

Measurement Variable	System ID	Last Cal.	Cal. Due
Flowmeter	E002371	03-08-18	03-31-19
Microbalance	M001324	11-02-16	11-30-18
Temp/Humidity	E005410	10-19-17	10-31-18
1 um PSL	698880	n/a	n/a
10 um PSL	187001	n/a	n/a

Linda Hillestad
Calibrated

August 22, 2018
Date