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26 July 2019

Jo Ventham (jo.ventham@outlook.com)
123/125 Dodworth Road
Barnsley
South Yorkshire
S70 6HL

Our ref: PB/8583A/HP

Dear Jo:

123/125 Dodworth Road: Air Quality Monitoring

Thank you for commissioning Phlorum to undertake a nitrogen dioxide (NO_2) monitoring programme at the above address.

It is our understanding that Barnsley Metropolitan Borough Council (BMBC) are concerned that the change of use of the above address to residential use could expose new residents to levels of pollution exceeding the annual mean air quality standard (AQS) of 40$\mu g.m^{-3}$.

The monitoring and subsequent analysis of data was undertaken in line with Local Air Quality Management Technical Guidance (LAQM.TG (16))[1]. An annualised (bias adjusted) concentration of 23.6$\mu g.m^{-3}$ was recorded at the façade of 123 Dodworth Road; this is below the annual mean AQS by 41%. As such, the site is considered to be suitable for residential use, in air quality terms.

Further details of the monitoring programme are detailed below.

Methodology

Phlorum undertook a three month monitoring programme at the above address from the 4th of April to the 5th of July 2019. Diffusion tubes were placed in triplicate at a single location at the façade of 123 Dodworth Road to ensure the verifiability of the monitoring results.

The location of the diffusion tubes was agreed with the Technical Officer (Pollution Control) at BMBC and it was also agreed that BMBC would undertake the diffusion tube change over each month.

[1] Defra. 2018. Part IV of the Environment Act 1995, Environment (Northern Ireland) Order 2002 Part III, Local Air Quality Management, Technical Guidance LAQM. TG(16). London: Defra.

The NO_2 diffusion tubes were supplied and analysed by South Yorkshire Air Quality Samplers. The diffusion tubes were prepared using 50% triethanolamine (TEA) in acetone. Both the supplier and method of preparation were chosen to match what BMBC do across their existing local monitoring network; this makes the results directly comparable as it negates any potential bias due to laboratory techniques or method of preparation.

The period mean diffusion tube data (3 months) was annualised in accordance with LAQM.TG (16) (Boxes 7.9 and 7.10). Five background Automatic Urban Rural Network (AURN) stations were used for annualisation; these included Barnsley Gawber, Derry Rosemount, Leeds Centre, Sheffield Devonshire Green, Sheffield Tinsley, Ladybower. An annualisation factor of 1.18 was derived.

The annualised data was then bias adjusted using a factor (0.95) derived from the *National Diffusion tube Bias Adjustment Factor Spreadsheet*[2]. It should be noted that in the absence of a bias adjustment factor for 2019 (the 2019 factor can't be calculated until the end of the year), the 2018 factor was used.

Results

The results of the monitoring programme are presented in Table 1 below. The raw results, including results from each individual diffusion tube are enclosed with this document (in electronic format).

Table 1: Diffusion tube monitoring results

	April	May	June	Period Mean	Annualised (1.18)	Bias adjusted (0.95)
Diffusion tube 1-3	26.3	19.3	17.7	21.1	24.8	23.6

Note: Any apparent discrepancies are due to rounding.

The results of the diffusion tube monitoring show that the annual mean concentrations of NO_2 at 123 Dodworth Road are well below the annual mean air quality standard of 40μg.m^{-3}.

Summary

The results of the diffusion tube monitoring programme show that the (annualised and bias adjusted) annual mean concentrations of NO_2 at 123 Dodworth Road are well below the annual mean air quality standard of 40μg.m^{-3}. As 125 Dodworth Road is set even further back from the source of pollution, concentrations will be even lower.

The site is, therefore, considered to be suitable, in air quality terms, for residential use.

[2] Defra (2019) National Diffusion Tube Bias Adjustment Factor Spreadsheet 06/19

Yours sincerely



Harley Parfitt
Environmental Consultant

Encs.