

Air Quality Statement.

Date: 14 March 2025

Project: Project RED

File ref: 3422742-HLE-NOTE-AQ-Project RED-R01.docx

Project RED.

1. Introduction.

This Air Quality Statement has been prepared for Integrated Health Projects (the 'Applicant') in support of the discharge of condition 7 associated with the planning application 135426/FO/2022 in relation to air quality impacts as a result of the two proposed diesel generators at Manchester Royal Infirmary, Oxford Road, Manchester (the 'Site') located within Manchester City Council (MCC).

Planning permission was granted on 15th of November 2024 (the 'Approved Scheme') in which an Air Quality Report [ref: RED-HLE-02-XX-RP-Y-000001] (the 'Previous Assessment') was submitted in 2022 to support the planning application for the Approved Scheme.

Planning condition 7 of the planning application for the Approved Scheme states that:

"a) The development shall proceed in accordance with the measures contained within the submitted Air Quality Report (Prepared by Hoare Lea; Dated 22/02/2022; Received 09/11/2022).

b) Prior to occupation of the development any agreed mitigation measures shall be implemented and verified as such in writing by the City Council as local planning authority and shall remain in situ whilst the use or development is in operation."

This Air Quality Statement considers the most up to date baseline air quality monitoring data for the Site and the latest generator design, to confirm that the conclusions of the Previous Assessment remain valid for the Approved Scheme. This document should be read in conjunction with the Previous Assessment.

2. Changes to baseline environment.

2.1 Local air quality monitoring.

The Previous Assessment used the year 2019 as the baseline year. Since the submission of this report, monitoring data from 2023 has now been made available by the Greater Manchester Combined Authority (GMCA) and it is presented in the most recent Annual Status Report (ASR) published in 2024¹. MCC is part of the GMCA administrative area.

2023 monitoring data is considered representative and is therefore the most recent year of representative monitoring data (the baseline year). Relevant updates have been made within this section.

In 2023, MCC undertook automatic monitoring at four locations and non-automatic monitoring (i.e. passive diffusion tubes) at 40 locations. A regression analysis has also been conducted using monitoring data from the GMCA ASR 2024¹ at all longstanding automatic monitoring stations and passive diffusion tube monitoring locations, which include monitoring data from the latest five year of representative monitoring data from 2017 to 2023, within the MCC administrative area. Due to the impacts of the COVID-19 pandemic, monitoring data from the years 2020 and 2021 is not considered representative of 'normal' air quality conditions due to government-imposed lockdowns and as such the regression analysis has not included 2020 or 2021 monitoring data.

2.2 Comparison of available baseline data.

Linear regression indicates that annual mean NO₂ concentrations, at all longstanding automatic monitoring locations, are decreasing at an average rate of approximately 2.6 µg/m³ per year. Additionally, the annual mean NO₂ concentrations at all longstanding passive diffusion tube monitoring locations are decreasing at an average rate of approximately 1.9 µg/m³ per year. These trends are considered statistically significant and are illustrated in Figure 1.

¹ Greater Manchester Combined Authority (2024) Air Quality Annual Status Report 2023, -[online], (Last accessed: 10/03/2025), Available at: https://downloads.ctfassets.net/tlpgbvy1k6h2/3XAEIZRea7W64L3A61H8R7/7a092aac00f18413a78ac611418526fe/ASR_2024_reporting_on_2023_Air_Quality_Final.pdf

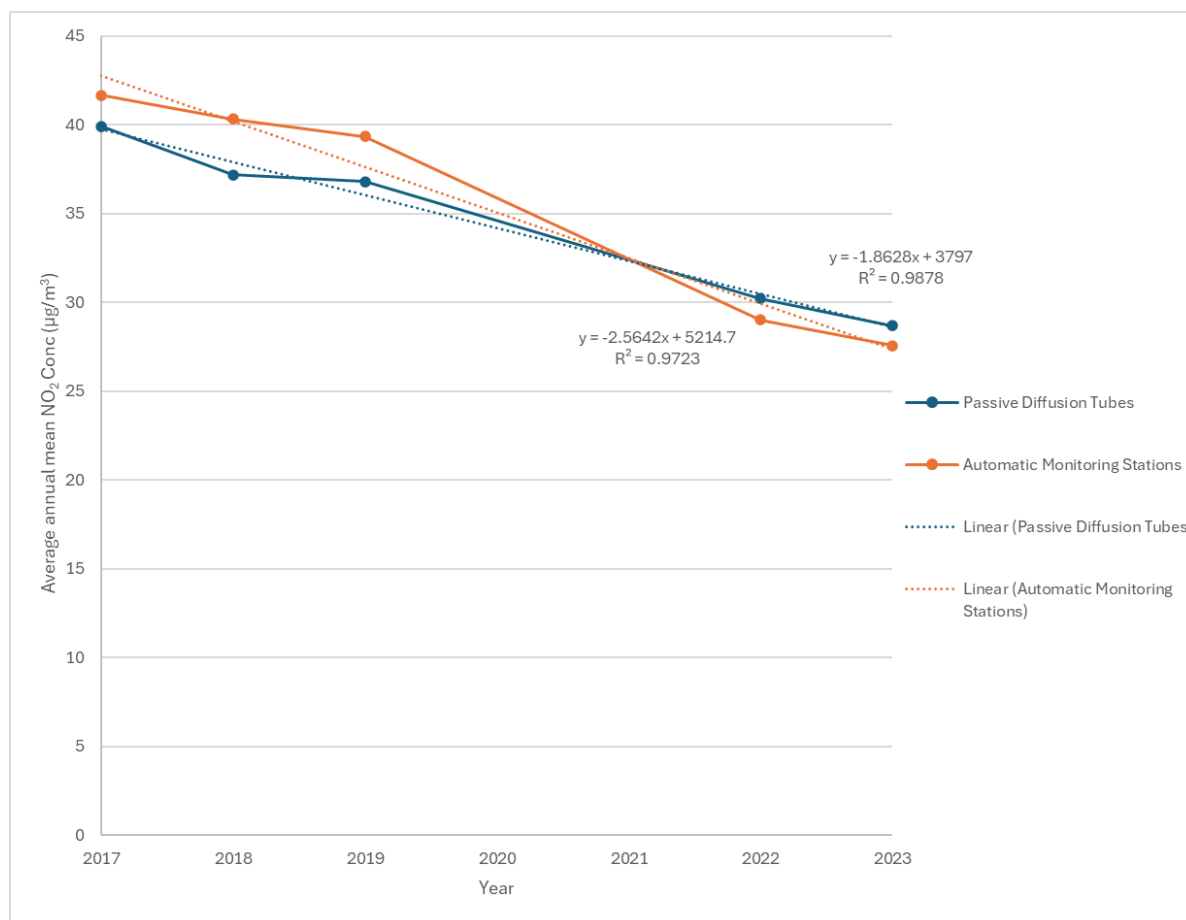


Figure 1: Regression Analysis of Annual Mean NO₂ Concentrations at Automatic Monitoring Stations and Passive Diffusion Tube Monitoring Locations in MCC administrative area.

Furthermore, as shown in Figure 2, regression analysis using monitoring data from MCC at all longstanding automatic monitoring stations, indicates that annual mean PM₁₀ and PM_{2.5} concentrations are decreasing at an average rate of approximately 1.1 µg/m³ and 0.04 µg/m³ per year, respectively. The trend shown for PM₁₀ concentrations is considered statistically significant.

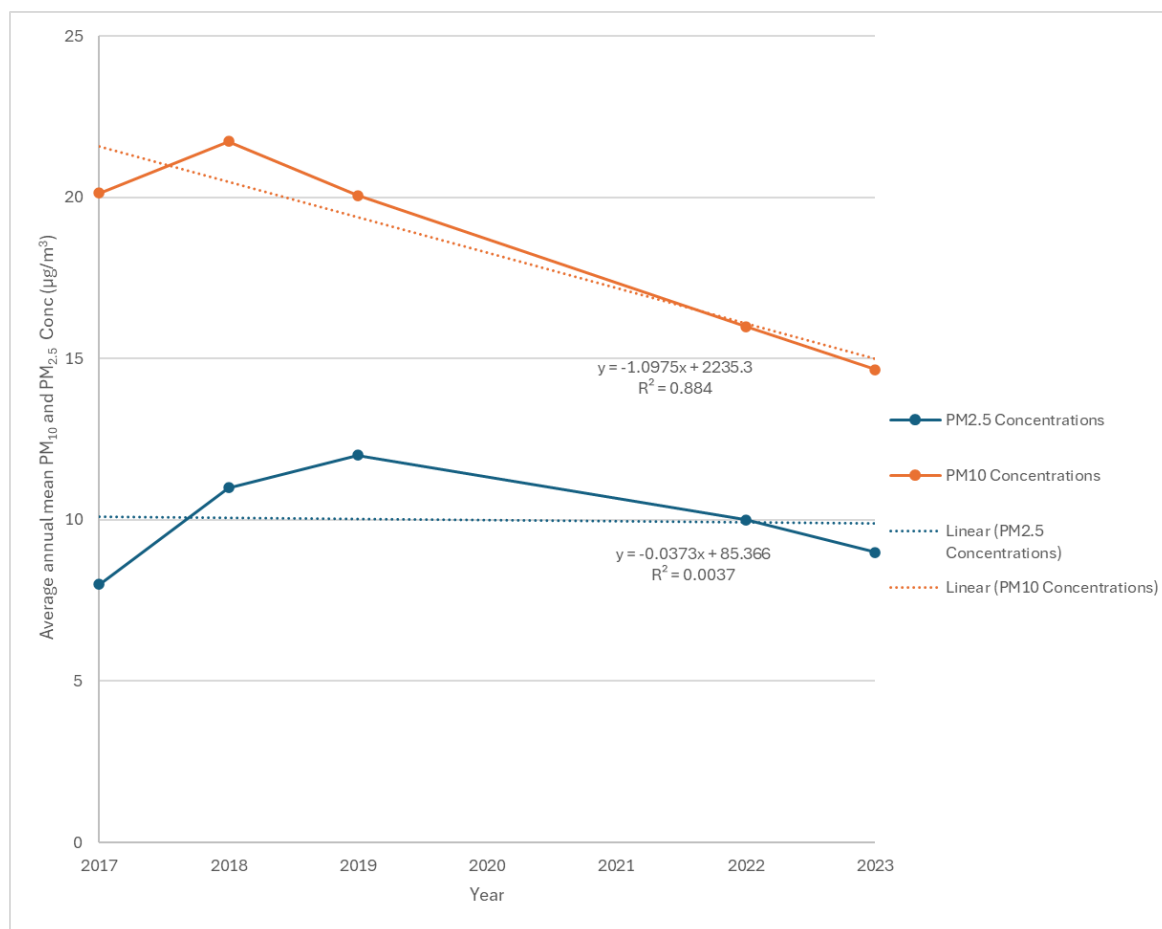


Figure 2: Regression Analysis of Annual Mean PM₁₀ and PM_{2.5} Concentrations at Automatic Monitoring Stations in MCC administrative area.

2.3 Defra predicted background concentrations.

Predicted background concentrations for NO₂, PM₁₀ and PM_{2.5} in 2025, the current year, have all improved since the previous baseline year in 2019. For NO₂, there has been a percentage decrease of approximately 19.6% in background concentration between 2019 and 2025, whilst for PM₁₀ and PM_{2.5} there has been a percentage decrease of approximately 7% and 6%, respectively.

3. Generator design.

The Previous Assessment considered two 1.7 MWe diesel generators (S16R-PTAA2 Engine) with two separate flues which will share a common free-standing windshield (the 'Approved Plant'). It also considered an operation scenario of 16 hours a year for testing/maintenance purposes when operating simultaneously, or 32 hours a year when operating individually to investigate the impact on local NO₂, PM₁₀ and PM_{2.5} concentrations. The Previous Assessment indicated that a stack height of 14 m would not result in significant air quality impacts, as such it was recommended for the proposed flues without the inclusion of mitigation measures.

This report provides a comparison between the Approved Plant and the latest design which consists of two 1.3 MWe diesel generators with the same exhaust configuration and flue design (the 'Updated Plant'). It has been confirmed by Hoare Lea, the project engineers, that the operation scenario for the Updated Plant remains the same.

Table 1: Comparison of Generator Design between Approved Plant and Updated Plant

Parameter	Approved Plant	Updated Plant
Make and Model	Mitsubishi S16R-PTAA2 Engine	Mitsubishi S16R-PTA Engine
Total Electrical Output (MW)	1.7	1.3
Flue height above ground (m)	14	14
Nitrogen oxides (NO _x) emission rate per generator (g/s)	8.475	8.171
Particulate Matter (PM) emission rate per generator (g/s)	0.224	0.237

As shown in Table 1, NO_x emission rate for the Updated Plant is lower than that of the Approved Plant, whilst the PM emission rate for the Updated Plant is marginally higher. Based on professional experience, PM emission rate remains low and is unlikely to lead to any significant air quality impacts. It is important to note that the baseline local monitoring data and background concentrations, as detailed in Section 2, indicate that PM₁₀ and PM_{2.5} concentrations have decreased in the last five years of representative monitoring data, suggesting an overall improvement in particulate matter concentrations throughout the area when compared to the conditions evaluated within the Previous Assessment.

The Previous Assessment concluded that the overall impacts of the Approved Plant, in relation to all relevant pollutants and their AQOs, were not significant, in line with the Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) guidance². Given the information reviewed in Table 1, in combination with the improved baseline monitoring data, it is expected that the Updated Plant will result in a small improvement in relation to air quality impacts. As such, the conclusions of the Previous Assessment remain valid and the Updated Plant will not lead to significant impacts. Therefore, condition 7 of the planning application for the Approved Scheme can be discharged.

² Environmental Protection UK and Institute of Air Quality Management (2017), Land-Use Planning & Development Control: Planning For Air Quality v1.2 – [online] (Last accessed: 12/03/2025), Available at: iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf

4. Conclusions.

This Air Quality Statement has been prepared in support of the discharge of condition 7 of planning application 135426/FO/2022. A review of the most up to date baseline air quality monitoring data for the Site and generator design has been undertaken and the findings are summarised below:

- Updated baseline air quality conditions show improvement from 2019, the baseline year in the Previous Assessment, to 2025, the current year.
- Based on the information reviewed regarding the Updated Plant, in combination with improved baseline and professional judgment, it is likely that emission rates from the Updated Plant will result in a small improvement in relation to air quality impacts.

Based on these findings, the conclusions of the Previous Assessment remain valid, and the design is aligned, allowing for the discharge of condition 7 associated with the planning application 135426/FO/2022.

Audit sheet.

Rev.	Date	Description of change / purpose of issue	Prepared	Reviewed	Authorised
01	14/03/2025	First Issue	LC	JJ	AD

This document has been prepared for Integrated Health Projects only and solely for the purposes expressly defined herein. We owe no duty of care to any third parties in respect of its content. Therefore, unless expressly agreed by us in signed writing, we hereby exclude all liability to third parties, including liability for negligence, save only for liabilities that cannot be so excluded by operation of applicable law. The consequences of climate change and the effects of future changes in climatic conditions cannot be accurately predicted. This document has been based solely on the specific design assumptions and criteria stated herein.