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## 1 Introduction

1.1.1 This technical note provides a response to comments made by Kirklees Council on the Air Quality Assessment submitted in support of the outline planning application for a warehouse at Leeds Road, Mirfield, application number 2023/60/92448/E. Kirklees Council Environmental Health (Pollution & Noise Control) provided a response on 11<sup>th</sup> September 2023, responding reference WK/202327411. With specific reference to air quality, the following comments have been made by Kirklees Council:

- The assessment is based on traffic speeds of 20km/hr, 25 metres from each junction. Firstly, we do not consider that the congestion zone of 25m reflects the reality of the congestion at this junction and this requires further explanation. Secondly no rationale has been given as to why 20km/hr has been used, and we request that this is remodelled using emission factors available for lower speeds.
- Further information is required regarding the proposed HGV movements per day and the expected age of the fleet.
- K6 is the nearest roadside diffusion tube to Rose Cottage R1. According to our latest monitoring figures taken from the 2023 ASR which is yet to be approved by DEFRA, the 2022 annualised concentration for K6 at roadside is 36.8 µg/m<sup>3</sup> and at the nearest receptor façade is 31.2 µg/m<sup>3</sup>. However, the predicted modelled concentration for the 2025 Do Minimum (DM) and Do Something (DS) scenarios as depicted in the assessment is 20.0 µg/m<sup>3</sup> respectively. This would suggest a reduction of 11.2 µg/m<sup>3</sup> over 3 years, this requires further explanation given the nature of this extremely busy junction.
- In accordance with the West Yorkshire Low Emission Strategy (WYLES) Technical Planning Guidance this application is classified as a major development in terms of air quality and there is a requirement for damage costs to be calculated and mitigation measures to the value of the damage costs. This is to offset the impact of the development on air quality.
- It is unclear if the assessment has considered the cumulative impact of other committed developments in the area.
- The assessment has omitted to include the impact on air quality during the construction phase, and any necessary mitigation measures and this is required.

1.1.2 Each of the comments are addressed below.

## 2 Response to Comments

### 2.1. Traffic Speeds

*The assessment is based on traffic speeds of 20km/hr, 25 metres from each junction. Firstly, we do not consider that the congestion zone of 25m reflects the reality of the congestion at this junction and this requires further explanation. Secondly no rationale has been given as to why 20km/hr has been used, and we request that this is remodelled using emission factors available for lower speeds.*

- 2.1.1 The estimate of traffic speeds of 20km/hr within 25m of a junction is based on advice in Local Air Quality Management (LAQM) Technical Guidance (TG22) published by Defra. LAQM.TG22 provides support for local authorities undertaking their statutory duties under the Environment Act 1995, as amended by the Environment Act 2021. When estimating emissions from road transport, LAQM.TG22 advises that, where local information with regards to congestion and associated speeds is not available, assumptions can be made as follows:

*“For a busy junction, assume that traffic approaching the junction slows to an average of 20kph. These should allow for a junction, which suffers from a lot of congestion and stopping traffic. In general, these speeds are relevant for approach distances of approximately 25m; ...”*

- 2.1.2 Therefore, it is considered that the average speed assumptions at junctions used in the Air Quality Assessment are appropriate.

### 2.2. HGV Movements

*Further information is required regarding the proposed HGV movements per day and the expected age of the fleet.*

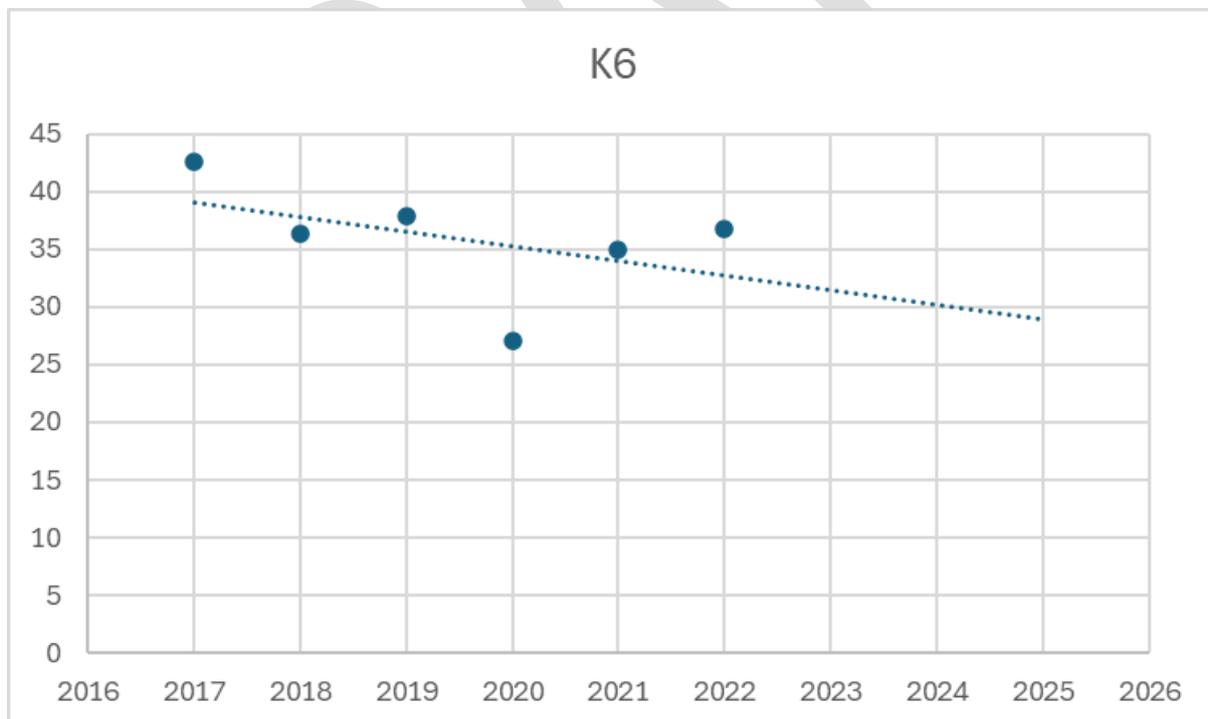
- 2.2.1 The traffic data used for the Air Quality Assessment was provided by Fore Consulting Limited, who should be able to answer any questions related to the data.

### 2.3. Diffusion Tube Monitoring Site K6

*K6 is the nearest roadside diffusion tube to Rose Cottage R1. According to our latest monitoring figures taken from the 2023 ASR which is yet to be approved by DEFRA, the 2022 annualised concentration for K6 at roadside is 36.8  $\mu\text{g}/\text{m}^3$  and at the nearest receptor façade is 31.2  $\mu\text{g}/\text{m}^3$ . However, the predicted modelled concentration for the 2025 Do Minimum (DM) and Do Something (DS) scenarios as depicted in the assessment is 20.0  $\mu\text{g}/\text{m}^3$  respectively. This would suggest a reduction of 11.2  $\mu\text{g}/\text{m}^3$  over 3 years, this requires further explanation given the nature of this extremely busy junction.*

- 2.3.1 The air quality dispersion model used for the assessment has been verified against 2019 monitoring data. 2019 data was used for model verification as 2022 data was not, and is still not, publicly available. Monitoring data from 2020 and 2021 was not used as measured concentrations may have been affected by travel restrictions used to control the Covid-19 pandemic.

- 2.3.2 The model verification process compares modelled pollutant concentrations against monitoring data, with factors derived from the difference between the two data sets used to adjust the model results in order to minimise uncertainties. The model verification process used for the Air Quality Assessment follows the methodology in LAQM.TG22, as described in Appendix A1 in the Air Quality Assessment.
- 2.3.3 Best practice for model verification is to use a number of monitoring sites and data from six sites was used for the Air Quality Assessment. The dispersion model will perform differently at each monitoring site, due to local conditions and uncertainties associated with the data input to the model. The overall verification factor calculated from the modelled/measured data and used to adjust the model outputs may result in over/under predicted concentrations at some monitoring sites. The statistical analysis presented in Appendix A1 of the Air Quality Assessment shows that the model verification resulted in an appropriate model performance.
- 2.3.4 Measured annual mean NO<sub>2</sub> concentrations at diffusion tube monitoring site K6 are represented in a graph in **Figure 1**. The graph also shows a trendline projected forward to 2025. There is a falling trend in annual mean NO<sub>2</sub> concentrations, with a projected annual mean concentration of around 29µg/m<sup>3</sup> at diffusion tube monitoring site K6 in 2025. The annual mean NO<sub>2</sub> concentration predicted at diffusion tube monitoring site K6 in 2025 without the proposed development is 21.4µg/m<sup>3</sup>. Therefore, assuming annual mean NO<sub>2</sub> concentrations continue to decrease at diffusion tube monitoring site K6 at the same rate as between 2017 and 2022, the model may underpredict concentrations at this location.



**Figure 1: Measured Annual Mean NO<sub>2</sub> Concentrations at Diffusion Tube K6**

- 2.3.5 Receptor R1 is close to diffusion tube monitoring site K6, but at the façade of a dwelling approximately 9m further from the kerb of the A62 than the monitoring site. The predicted annual mean NO<sub>2</sub> concentration at receptor R1 is 1.4µg/m<sup>3</sup> lower than

at the monitoring site in 2025. Therefore, an estimate of the 2025 annual mean NO<sub>2</sub> concentration at receptor R1, based on the decreasing trend in annual mean concentrations at diffusion tube monitoring site K6, is around 28µg/m<sup>3</sup>, well below the annual mean objective of 40µg/m<sup>3</sup>.

- 2.3.6 The impact on annual mean NO<sub>2</sub> concentrations at receptor R1 in 2025 due to the proposed development is 0.04µg/m<sup>3</sup>. Using the IAQM impact descriptors described in Section 3.3 of the Air Quality Assessment, the impact at receptor R1 would be negligible, and the uncertainty with regards predicted concentrations at this location would not change the conclusions of the Air Quality Assessment.
- 2.3.7 Conversely, the verified model overpredicts annual mean NO<sub>2</sub> concentrations at diffusion tube monitoring site K22, at the A62/A6107 junction, where an annual mean NO<sub>2</sub> concentration of 33.4µg/m<sup>3</sup> was measured in 2019, and an annual mean NO<sub>2</sub> concentration of 39.7µg/m<sup>3</sup> is predicted.

## 2.4. Damage Costs

*In accordance with the West Yorkshire Low Emission Strategy (WYLES) Technical Planning Guidance this application is classified as a major development in terms of air quality and there is a requirement for damage costs to be calculated and mitigation measures to the value of the damage costs. This is to offset the impact of the development on air quality.*

- 2.4.1 The planning application is an outline application, with the final layout and scale of the proposed development determined at reserved matters. As the estimate of the level of trips generated by the proposed development will ultimately change at reserved matters, it is suggested that the requirement for a damage cost calculation is conditioned for completion at reserved matters.

## 2.5. Cumulative Impacts

*It is unclear if the assessment has considered the cumulative impact of other committed developments in the area.*

- 2.5.1 The traffic data used for the Air Quality Assessment was provided by Fore Consulting Limited, who should be able to answer any questions related to whether trips from other committed developments were included in the future baseline data.
- 2.5.2 The maximum impact on pollutant concentrations due the proposed development was 0.05µgNO<sub>2</sub>/m<sup>3</sup> at receptors R4 and R4, which is a 0.1% change in concentrations relative to the air quality objective. Therefore, using the IAQM impact descriptors described in Section 3.3 of the Air Quality Assessment, the impact would be negligible regardless of baseline (with committed developments) concentrations and the conclusions of the Air Quality Assessment would not change.

## 2.6. Construction Dust

*The assessment has omitted to include the impact on air quality during the construction phase, and any necessary mitigation measures and this is required.*

- 2.6.1 The planning application is an outline application, with the final layout and scale of the proposed development determined at reserved matters. The construction dust

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risk assessment is dependent on the scale and layout; therefore, it is suggested that the requirement for a construction dust risk assessment is conditioned for completion at reserved matters.

## **2.7. Conclusion**

- 2.7.1 The Air Quality Assessment submitted in support of the outline planning application provides a robust assessment of the impact of the proposed development on air quality at local receptors. The conclusion of the Air Quality Assessment is that the proposed development will have a negligible impact on local air quality, and the additional information provided in this Technical Note does not alter that conclusion.
- 2.7.2 It is suggested that mitigation, in the form of a damage cost calculation and a construction dust risk assessment, is conditioned, requiring completion at reserved matters when the final scale and layout of the proposed development is known.

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