

Comment on Land at School Lane (22/505618/FULL)

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1. Introduction

1. The Centre for Health Services Studies (CHSS) at The University of Kent has been asked by Newington Parish Council to provide an expert opinion on the impact of proposed local development on air quality and health.
2. The specific development is Swale Borough Council reference 22/505618/FULL and pertains to the erection of 25 dwellings [1]. Note that CHSS has commented on previous application at the same site (21/504028/FULL) whose application was rejected.
3. An air quality assessment [2] has been prepared for the site by Lustre Consulting and this will be the subject of comment in our submission. Note that has identical baseline conditions and predictions as the original AQA submitted for 21/504028/FULL [3] and the “revised” AQA assessment submitted for 21/504028/FULL. This illustrates the lack of attention paid by SBC to our comments.

2. Summary

4. The initial model presented in the AQA is extremely poor and is not suitable for the subsequent scaling adjustment applied. The results presented therefore cannot be considered representative or reliable.

3. Initial model does not meet minimum requirements for model adjustment

5. Table 12 on page 37 of the AQA for School Lane [2] outlines the initial comparison of Modelled and Monitored NO₂ and provides percentage differences. The point of this is to establish whether the initial model is accurate enough to proceed to model adjustment (if necessary).
6. Note that Lustre refers to the old technical guidance LAQM-TG(16) since that was what was available at the time they wrote the report, but a new technical guidance

LAQM-TG(22) [5] has since become available. With respect to the arguments outlined here however, there has been no material change and our arguments hold according to the newest guidance.

7. In paragraph 5.6 on page 38, Lustre cites the LAQM technical guidance [4] (LAQM-TG(16)) as justification as to why they can proceed straight to model adjustment, giving the reason “*Since the modeled NO₂ concentrations are outside +/-10%*”. They then proceed to model adjustment.
8. This misses an important gating procedure that should be applied **before** moving onto model adjustment. Box 7.17 on page 7-135 of LAQM-TG(16) [4] outlines the procedure for “*Initial Comparison of Modelled and Monitored Total NO₂ Concentrations*”. This procedure should be examined before moving onto Box 7.18 because Lustre compares NO₂ values in Table 12 and not NO_x.
9. Box 7.17 outlines several conditions via the directive “*If your checks confirm that:*” and, relative, here requires that:
 - A. *there is no systematic under or over prediction;*
 - B. *predictions at sites where monitoring shows concentrations are close to the objective show good comparison; and*
 - C. *the majority of results are within 25% (as a minimum - preferably within 10%) of monitored concentrations*
10. Let us examine these conditions. Firstly, the model systematically under-predicts (at every location), with an average underprediction of 11.25 µg/m³. Thus requirement A is not met.
11. Secondly, SW121 has an actual value of 42.7 µg/m³, which is close to the objective (40 µg/m³), but has a predicted value of 19.7 µg/m³, which is an underprediction by 54.0%. SW35, SW42, SW19, and DT01 are also near the objective and have poor under-predictions. Thus “*predictions at sites where monitoring shows concentrations are close to the objective*” show poor comparison and requirement B is not met.
12. Finally, out of 15 locations, 11 (73%) have an error of 25% or more. Thus the majority of results are not within 25% and requirement C is not met.
13. Clearly in no sense should this model be considered a good model. Box 7.17 states that if conditions are not met then:

“you will need to consider altering the model inputs and rerunning in order to improve the results of the comparison and verification”
14. Thus, it is not appropriate for Lustre to proceed immediately to model adjustment via a simple scaling adjustment factor, they should rather follow the guidance and alter the model inputs **until** the majority of results are within 25%.
15. Given that the initial model isn’t suitable, the final results should not be considered so.

4. References

- [1] '22/505618/FULL - Erection of 25no. residential dwellings', Jan. 2023 [Online]. Available: <https://pa.midkent.gov.uk/online-app/><https://pa.midkent.gov.uk/online-applications/> (search for 22/505618/FULL)
- [2] Lustre Consulting, 'SCHOOL LANE, NEWINGTON AIR QUALITY ASSESSMENT - Jan 2022', Jan. 2022 [Online]. Available: https://pa.midkent.gov.uk/online-applications/files/222E33E0032835ED427699F7A3FC739E/pdf/22_505618_FULL-Air_Quality_Assessment-5745658.pdf
- [3] Lustre Consulting, 'School Lane, Newington. Air Quality Assessment'. 07/21 [Online]. Available: Search SBC planning portal for 21/504028/FULL: <https://pa.midkent.gov.uk/online-applications/>
- [4] DEFRA, 'Local Air Quality Management Technical Guidance (TG16) - April 2021'. 04/21 [Online]. Available: <https://laqm.defra.gov.uk/documents/LAQM-TG16-April-21-v1.pdf>
- [5] DEFRA, 'Local Air Quality Management Technical Guidance (TG22) - August 2022', Aug. 2022 [Online]. Available: <https://laqm.defra.gov.uk/wp-content/uploads/2022/08/LAQM-TG22-August-22-v1.0.pdf>. [Accessed: Sep. 14, 2022]