Response to SBC Planning Officers Final Report with regard to 17/505711/HYBRID(Land at Wises Ln)

Prepared by CHSS, The University of Kent, 28/01/2019

Recommendations

1. SBC must publish the complete set of NO_2 data it has measured from July 2018 onwards in the interests of transparency and to allow Borden Parish Council to assess the situation.
2. The developer must re-run it's modeling using the new NO_2 diffusion tube data measured by SBC from July 2018 onwards:
    a. The model should be calibrated against these measurements using at least six points such that it's baseline predictions differ from actual measurements by no more than 10%.
    b. These baseline predictions should be provided by the developer so that the public can assess their accuracy as a basis for their 2025 predictions.
    c. A new report should be submitted by the developer on the basis of their new predictions, with new damage calculations provided.
3. SBC must consider creating a new AQMA given that measurement point SW113 is showing NO_2 far in excess (85.8 ug/m3) of the 40ug/m3 national limit.

Context

In preparation for the "Land at Wises Ln" planning application (17/505711/HYBRID), Swale Borough Council's (SBC) planning officer has completed a "Final Report" [1] to brief the planning committee in advance of their meeting on the 30th January 2019, whereupon the planning application will be decided upon.

Section 6.21 of the report touches on air quality and the reasons for objecting the previously submitted University of Kent (UoK) air quality report are given:

"Borden Parish Council have commissioned and submitted an AQ assessment, carried out by the University of Kent, in which its claims to demonstrate that there is evidence to show that current monitoring by both SBC and the applicant's AQ consultant underestimates the actual levels of air pollution in this vicinity and therefore, should this application go ahead, that levels of air pollutants would be worsened still, though not exceeding current guideline values.

The report is fundamentally flawed for two main reasons: The measuring periods are far too short. The equipment used is not MCERTS approved for this type of monitoring; the

particulate monitoring has been carried out by an analyser that is not suitable for outdoor monitoring.

A number of statements are made in the report which cannot be substantiated because the data is not comparable with the long-term monitoring carried out by SBC and also the modelling carried out by the applicant's AQ consultant. Therefore the conclusions and inferences made in the report are not accurate."

This document offers a criticism of these conclusions and argues that the developer's air quality predictions are not fit-for-purpose and should be re-evaluated to take account of better baseline Nitrogen Dioxide data obtained by SBC itself.

UoK Response

Swale Borough Council (SBC) base their objections to The University of Kent (UoK) report on two fronts: firstly they argue that UoK's measurement periods are too short, and secondly they argue that the equipment employed is not MCERTS approved nor suitable for outdoor monitoring.

To take the first objection: The UoK measured NO_2 for two months whereas the developer did not measure it at all and based its predictions on background data [4,5,6]**.** It is one thing to argue the limitations of two months measurement, but quite another to claim that no measurement at all will produce superior results. The absurdity of this argument by SBC can be captured in the summary of it: "Two months of data is not good enough but no months of data is authoritative".

The second objection by SBC is that *"The equipment used is not MCERTS approved"* and that the particulate analyser is *"not suitable for outdoor monitoring"*. The equipment not being MCERTS approved says only that the manufacturer has never submitted it for certification, it says nothing about the accuracy of the equipment.

The UoK provided SBC with **side by side comparisons** between the equipment used and the Defra AURN site in Chatham, as well as references to the peer-reviewed scientific literature [6,7,8] showing that the equipment has strong correlation to reference equipment in outdoor environments. SBC has completely ignored this evidence to favour the developer.

SBC itself routinely uses equipment which is not only lacking MCERTS approval, but which is categorised by Defra as an "*indicative monitoring technique",* namely diffusion tubes.

Defra's guidance for diffusion tubes states that *"NO2 diffusion tubes are an indicative monitoring technique"* and that they *"do not offer the same precision and accuracy as the automatic chemiluminescence analyser"* [1].

So if SBC wishes to disregard the UoK evidence on the basis of it not being MCERTS approved, then it also undermines its own AQAP and associated documents since they are

so heavily based on diffusion tube data. The point isn't whether something is MCERTS approved or not, but whether the data is accurate enough to make an informed decision given the question being asked.

The equipment used by UoK to monitor particulates is at least as accurate as diffusion tubes are for NO_2 and the evidence indicates it is more accurate than diffusion tubes. If it is acceptable for SBC to base AQMA activities on diffusion tubes, and for Entran to calibrate it's modeling predictions on diffusion tubes, then it is also acceptable for us to use particulate monitoring equipment that is, most likely, more accurate than diffusion tubes to make an argument.

SBC go on to claim of the UoK report that *"the data is not comparable with the long-term monitoring carried out by SBC"*. This is an interesting statement since SBC only started monitoring NO_2 in Borden Village in July 2018 as a result of pressure applied by Borden Parish Council and as a consequence of the UoK report. Given that SBC is critical of the UoK report for the monitoring period not being long enough, it seems a leap of faith for them to argue that two months of data is useless but five months of data is authoritative. At best SBC is stretching the truth by calling this *"long-term monitoring"* and at worst it is misleading.

Having access to data that SBC considers authoritative is however insightful, in light of their rejection of the UoK data, as we can now compare their authoritative data with the predictions made by Entran on behalf of the developer. Unfortunately SBC have only published two months of data at the time of writing. This is shown in Figure 1

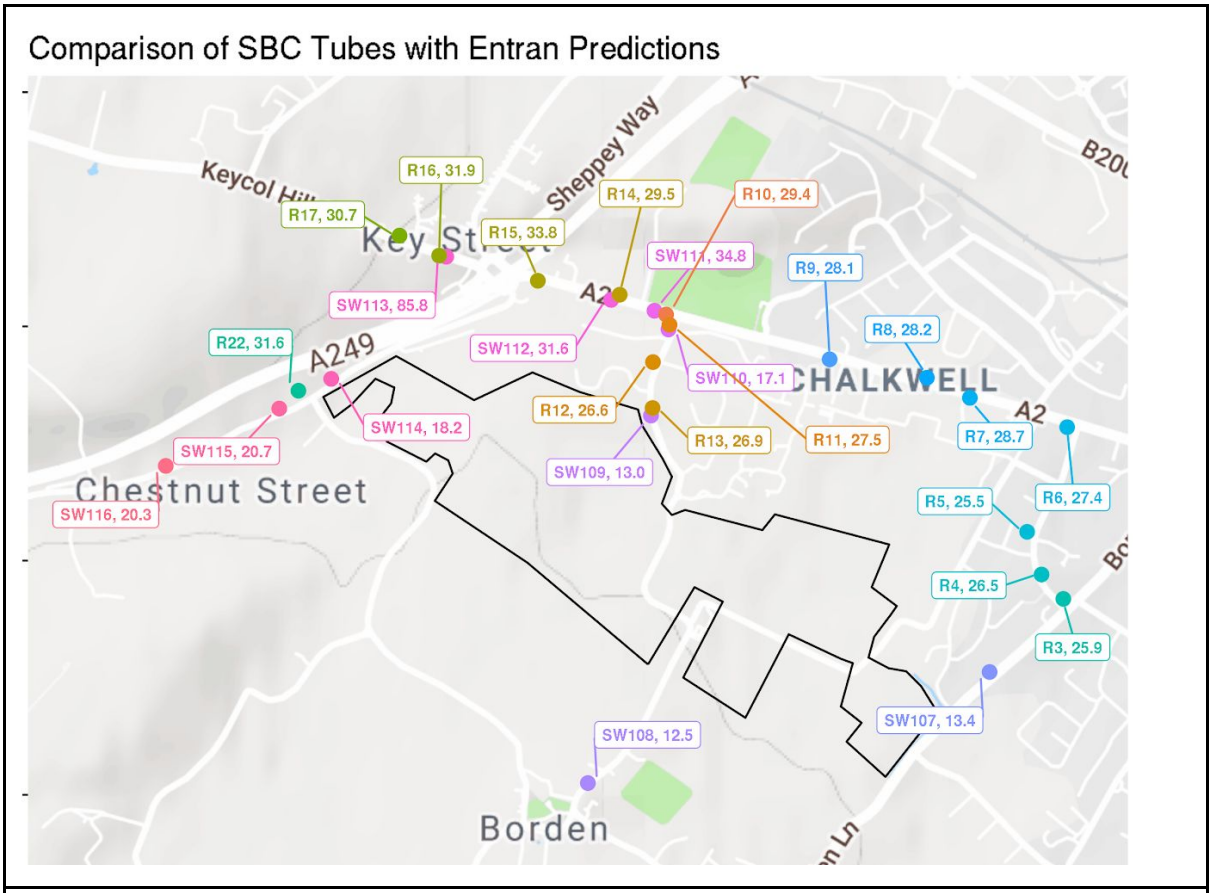

Figure 1 - Comparison of Swale Borough Council diffusion tube measurements with Entran's 2025 predictions for "Land at Wises Ln" (with development). SBC measurements are prefixed by "SW" whereas Entran predictions are prefixed by "R".

Point SW113 shows a mean value of 85.6 ug/m3 for NO_2 which is double the national limit. It seems likely that this is an overestimate but it also seems probable that the annual average for this location will exceed the national limit. This is important as it implies that a new AQMA should be considered.

The data measured also shows contradictions with Entran's predictions. Specifically, Entran has previously claimed that pollution will fall due to reduced emissions in the future, and it has also claimed that its receptors are at residential locations and not roadsides. This would imply that its predictions should all be less than current measurements if we follow their logic. Looking at points such as SW109 we see that this isn't the case. If we reject their logic, then other points are also contradictory. At the very least Entran must re-run its modelling using this new data source.

The discrepancy between predicted and measured values at the very least indicates that Entran should re-execute the modeling using the new SBC data as a verifying agent.

SBC needs to publish the remainder of the data they have measured so that the situation can be assessed fairly.

References

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[2] Diffusion Tubes for Ambient NO2 Monitoring: Practical Guidance for Laboratories and Users Report to Defra and the Devolved Administrations ED48673043 Issue 1a Feb 2008 https://laqm.defra.gov.uk/documents/0802141004_NO2_WG_PracticalGuidance_Issue1a.pdf

[3] Quinn Estates Ltd Land at Southwest Sittingbourne, Kent Environmental Statement: Volume 1, Main Text, Revision 1.2, 20/09/17, Entran Limited

[4] Quinn Estates Ltd Land at Southwest Sittingbourne, Kent Environmental Statement: Updated Air Quality Chapter, Revision 1.3, 10/05/18, Entran Limited

[5] Land at Southwest Sittingbourne, Kent, ES Addendum Information Explanation Note, 07/06/18, Entran Limited

[6] I. Han, E. Symanski, and T. H. Stock, “Feasibility of using low-cost portable particle monitors for measurement of fine and coarse particulate matter in urban ambient air,” *J. Air Waste Manag. Assoc.*, vol. 67, no. 3, pp. 330–340, Mar. 2017 [Online]. Available: http://dx.doi.org/10.1080/10962247.2016.1241195

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