

17 May 2021

Clarifications for Inquiry – Air Quality

APP/25A Proof of Evidence – Nigel Mann, Air Quality

Proposed Mixed Use Development Sandleford Park, Newbury, West Berkshire.

A106825-1

Response to Questions Raised During David West Ecology Evidence 13 May
2021

1.0 Air Quality Assessment Levels within the site (close to Ancient Woodland)

A question was raised whether the air quality assessment included the proposed roads within the site, with regard to the ancient woodland parcels. Figure 1 below (from the ES Air Quality Assessment) shows that the main roads (Spine Road, and A339 Link) within the site were included within the model and I can confirm that minor roads would have similar effects. Whilst the air quality contour plots (figure 2) are not very granular, the concentrations modelled on site are all below the levels of $30 \text{ ug/m}^3 \text{ NO}_2$. For completeness, the contour plots have been re-run (on all the same inputs and assumptions) and are presented below in Figures 2 and 3 for NO_2 to compare against the critical load of $30 \text{ ug/m}^3 \text{ NO}_x$. Figure 2 shows the concentrations of NO_2 are significantly below the Critical Load (even assuming worst case that all NO_2 is NO_x). Figure 3 shows the predicted change in NO_2 as a result of the changes in vehicle movements associated with the development.

To conclude, the road vehicle emissions associated with the changes in vehicle movements as a result of the development, displayed in Figure 3, shows that there will be negligible effects at the Ancient Woodlands receptors within the site boundary.

2.0 Particulate Matter Effects on Ancient Woodland

There are no clear studies that consider the effects of fine particles on ancient woodland. The majority of studies consider the effects of particles and dust (typically from quarrying). These studies confirm that the primary effect of dust and particles on plants are from the soiling where the deposition of dust on the leaves blocks photosynthesis. However, this is generally only the case for larger 'dust' particles that settle within 3-10m of roads or quarrying operations. In my understanding, finer particles such as PM₁₀ (10um in diameter) and the even finer PM_{2.5} (2.5um in diameter) would not cause any soiling and being the size of pollen grains (eg. oak pollen grains around 10 – 20 um) are unlikely to have a significant effect on plants / trees.

Figure 1. Sandford Park Development Area

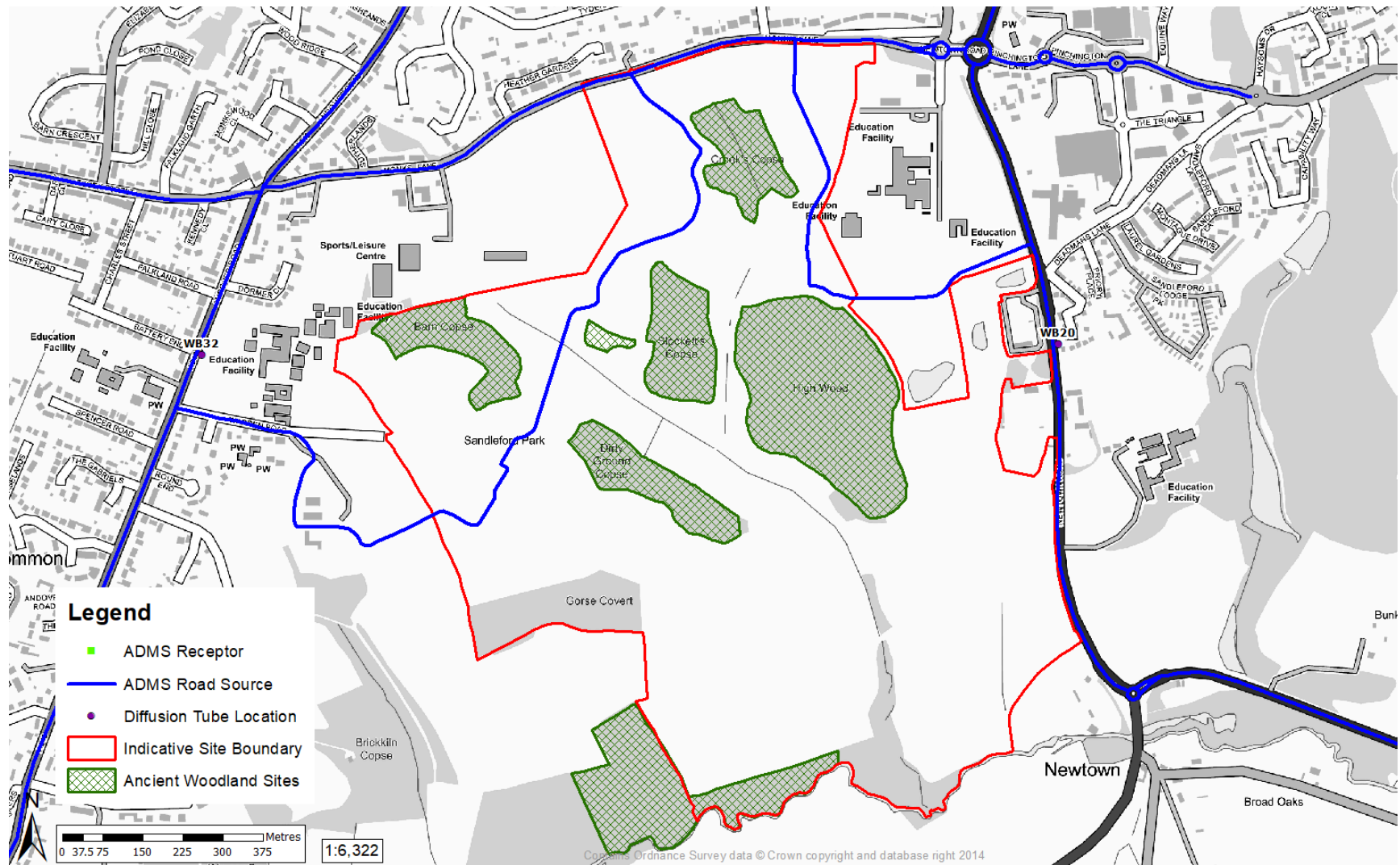


Figure 2. Total Long Term Annual Average Nitrogen Dioxide (NO₂) Concentration at Proposed Development (µg/m³)

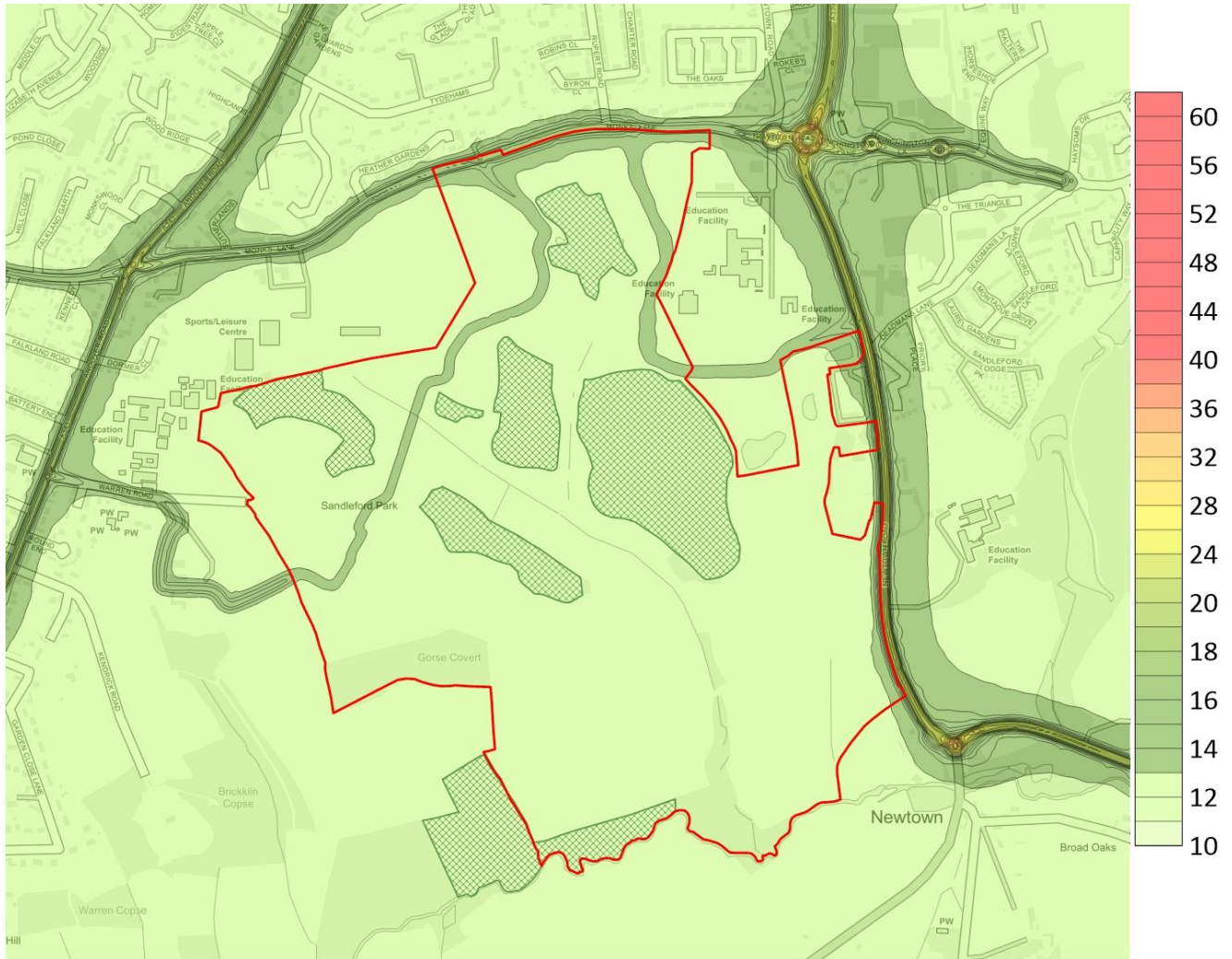


Figure 3. Annual Average Long-Term Nitrogen Dioxide (NO₂) Contribution from Proposed Development (µg/m³)

