

Model Verification Procedure

It is recommended by DEFRA's Technical Guidance (TG.16) that the model results are compared with measured data to determine whether the model results need adjusting to more accurately reflect local air quality.

There is one suitable diffusion tube monitor located 220m south of the proposed development site on Woolwich Road which has been used for model verification purposes. The verification process resulted in a factor of 1.7. The roadside NO_x concentrations predicted by the model have been adjusted by the verification factor before being converted to roadside NO₂ concentrations. Background concentrations are then added to provide total NO₂ concentrations at each receptor location. As there is no suitable monitoring of PM₁₀ in the vicinity of the development site, the predicted roadside annual mean concentrations for PM₁₀ have also been adjusted using a factor of 1.7 before background concentrations are added to provide total PM₁₀ concentrations at each receptor.

Data from the DEFRA predicted background maps were used to provide background NO_x and NO₂ concentrations.

The monitored roadside NO_x was derived by using the diffusion tube tab of the NO_x to NO₂ calculator. The modelled and monitored roadside NO_x contribution values were compared and a factor was obtained. The modelled roadside NO_x contribution values were adjusted by the corresponding factor. The adjusted modelled roadside NO_x contribution values were converted to roadside NO₂ by using the NO_x to NO₂ Calculator. The modelled roadside NO₂ is then compared to the monitored roadside NO₂ and another factor is obtained. This factor is applied to the corresponding modelled roadside NO₂ value and then a total NO₂ value is obtained by adding the background NO₂.

Model Verification

| Monitoring locations | Monitored Total NO ₂ (µg/m ³) annual mean | Monitored Total NO _x (µg/m ³) annual mean | Monitored B/G NO ₂ (µg/m ³) | Monitored B/G NO _x (µg/m ³) | Monitored Road NO _x (µg/m ³) | Modelled Road NO _x (µg/m ³) | Road NO _x Verification factor | Adjusted Modelled Road NO _x Conc | Monitored Road NO ₂ | Adjusted Modelled Road NO ₂ | Road NO ₂ Verification factor | Adjusted Road NO ₂ Conc | Final Total NO ₂ | |
|----------------------|--|--|--|--|---|--|--|---|--------------------------------|--|--|------------------------------------|-----------------------------|--|
| GW29 | 61.8 | 127.7 | 26.1 | 40.6 | 87.1 | 52.4 | 1.7 | 87.1 | 35.7 | 35.69 | 1.00 | 35.7 | 61.8 | |
| Average = | | | | | | | 1.7 | Average = | | | | 1.00 | | |