

Appendix 10-B Baseline Air Quality Monitoring

3B.1 Diffusion Tube Data

10-B.1.1 Diffusion tubes measuring ambient NO₂ were deployed within the vicinity of the preferred route at 25 separate locations as shown in Figure 10.4. In addition, three tubes were co-located with automatic (chemiluminescence) monitors located at Lullington Heath, Bebsham landfill site and De La Warr Road. These sites allow comparisons to be made between diffusion tube results and automatic results and adjustments to be made to compensate for systematic errors in diffusion tubes. This improves the quality and robustness of data.

10-B.1.2 The results of the diffusion tube survey to determine annual mean NO₂ concentrations at rural and kerbside locations in the study area are summarised in Figure 10-B.1. Concentrations at background locations are in the range 15–24µg/m³; approximately half of the air quality limit/objective values for the protection of human health. In contrast, NO₂ concentrations at kerbside locations are close to the air quality limit/objective value. At two sites, De La Warr Road and Battle Road, the limit value is breached. Note, however, these observations are for 2005/2006 whereas the air quality limit is required to be achieved in 2010. This is considered further in section 10.4 of the main report.

10-B.1.3 Adjustments to the monitored results collected from the diffusion tube analysis have been adjusted in accordance with the technical guidance supplied by DEFRA (TG.03). Diffusion tubes were co-located at permanent automatic monitoring station throughout the study. The annual mean from the co-located diffusion tubes were compared to the annual mean from the automatic monitoring station. The ratio between the two averages is then used to calculate the bias adjustment factor which is then used to calculate the adjusted (or bias adjusted) annual mean. Both the monitored and adjusted annual means are presented below, along with which tubes were collocated with automatic monitoring stations.

10-B.1.4 Breaches of the annual mean air quality limit/objective of 40µg/m³ were recorded at two sites - De La Warr Road (site 9), and Battle Road (site 13). These two locations are sited on busy 'A' roads and the exceedances are likely to be directly related to the traffic flows present along these roads. The influence of roads on the ambient concentration can be seen when comparing the average ambient concentrations between kerbside and rural locations in the figures below; rural ambient concentrations are below 20µg/m³, whereas in urban areas the majority of ambient concentrations vary between 20-35µg/m³, with the exceptions of De La Warr Road and Battle Road.

Figure 10-B.1 Annual Mean NO₂ Concentrations from Kerbside Diffusion Tubes

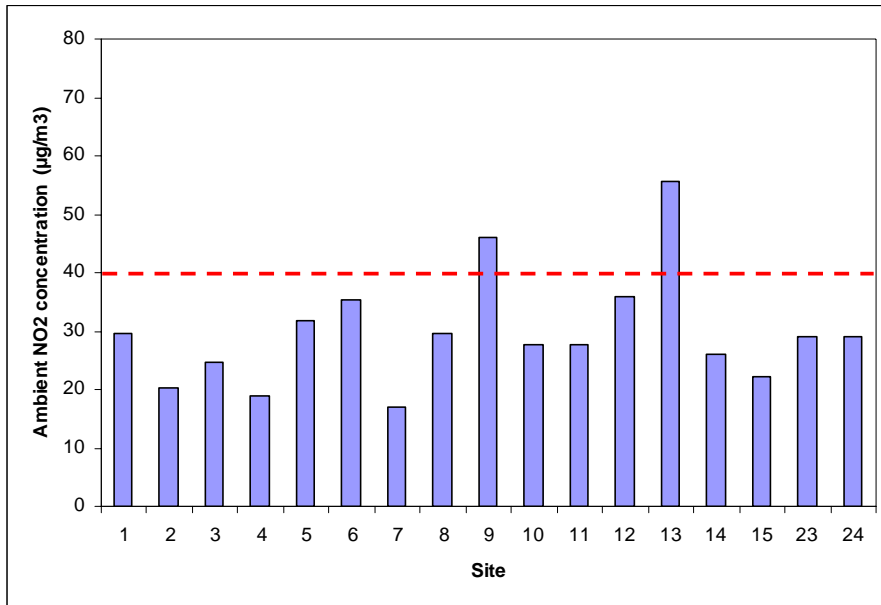


Figure 10-B.2 Annual Mean NO₂ Concentrations from Rural Diffusion Tubes

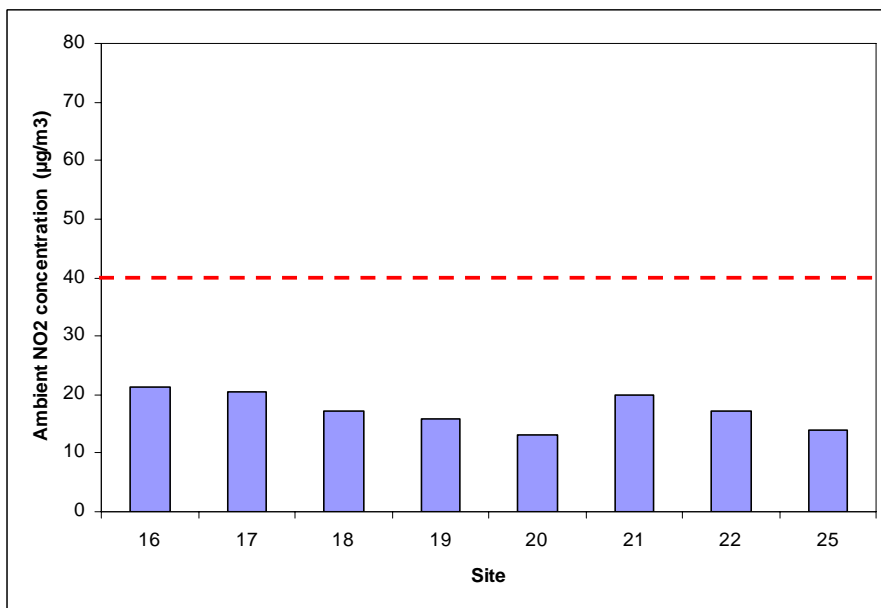
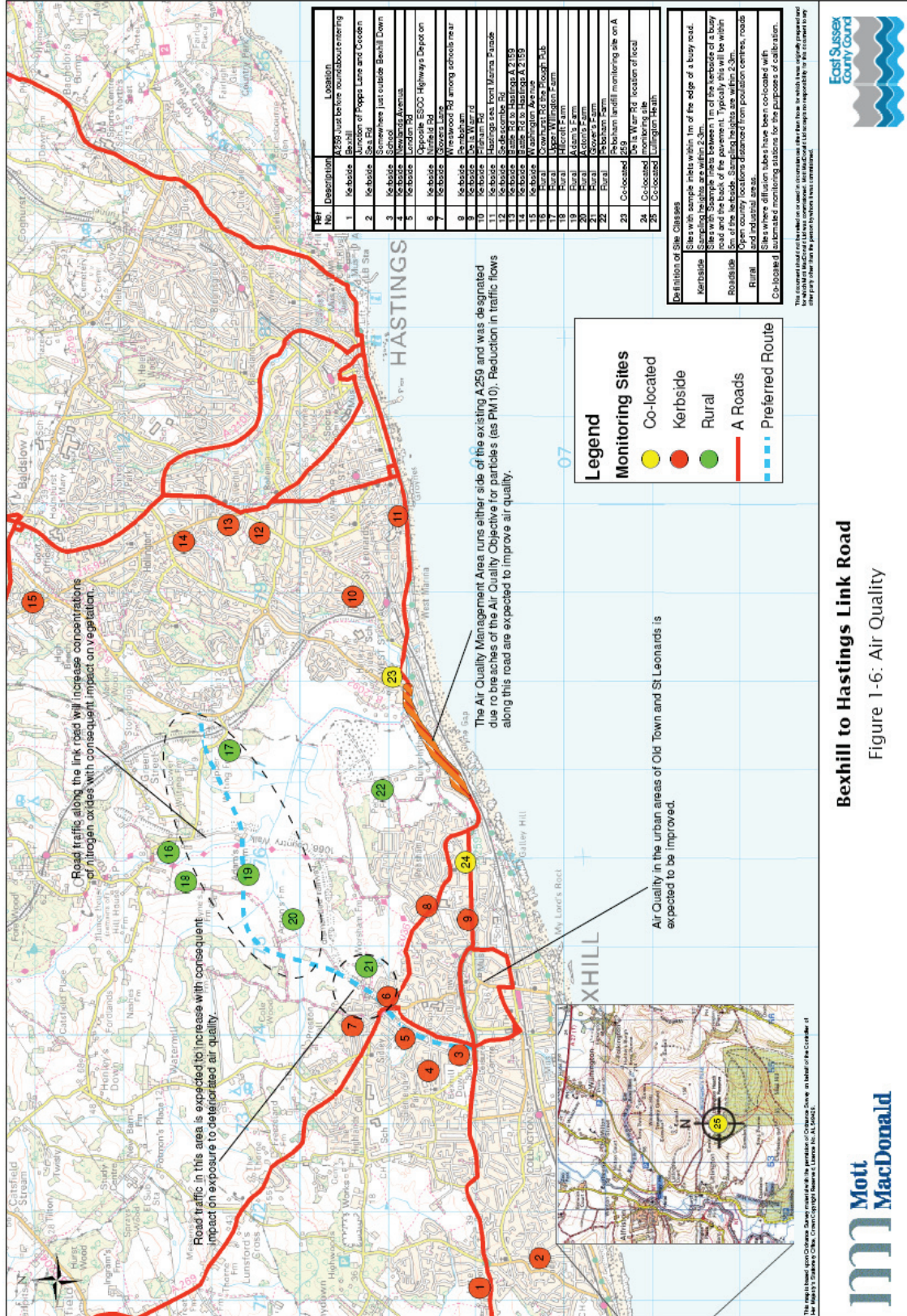


Figure 10-B.3 Location of Diffusion Tube Sites



Bexhill to Hastings Link Road
 Figure 1-6: Air Quality

Table 10-B.4 Nitrogen Dioxide Diffusion Tube Survey Results

Site	Location/Street	X	Y	NO ₂ µg/m ³	NO ₂ µg/m ³ (Adjusted)	Type	Sample size
1	Barnhorn Road A259. Next to sign post for A59 Bexhill Hastings main roundabout	571203	107875	28	30	Kerbside	11
2	Junction of Popp Lane and Cooden Sea Rd B2182	571367	107255	19	20	Kerbside	9
3	Outside Bexhill Down School	573648	108083	23	25	Kerbside	13
4	Newlands Avenue	573615	108435	18	19	Kerbside	14
5	London Rd	574055	108558	29	32	Kerbside	4
6	Opposite ESCC Highways depot (lamppost with sign)	574340	109075	33	35	Kerbside	10
7	Glovers Lane	574090	109188	16	17	Kerbside	2
8	Wrestwood Rd.(A2036) among the schools there near Pembsham	574980	108782	28	30	Kerbside	14
9	De la Warr Rd	575175	108095	43	46	Kerbside	9

Site	Location/Street	X	Y	NO ₂ µg/m ³	NO ₂ µg/m ³ (Adjusted)	Type	Sample size
	(A259)						
10	Filsham Rd (parking in front)	579158	109435	26	28	Kerbside	12
11	Along Hastings sea front	578975	108735	26	28	Kerbside	13
12	Sedlescomb Rd	579735	110392	33	36	Kerbside	11
13	Battle Rd to Hastings A 2036	579877	110752	52	56	Kerbside	9
14	Battle Rd to Hastings A 2036 &	579347	112025	24	26	Kerbside	10
15	Washington Avenue (20 m down road) of Battle Rd to Hastings	578857	112880	20	22	Kerbside	12
16	Crowhurst Rd. in the village The Plough pub	576150	111765	17	21	Rural	13
17	Upper Willington Farm	577367	110910	17	20	Rural	13
18	Hillcroft Farm	575593	110925	14	17	Rural	12
19	Adam's Farm	576250	110660	13	16	Rural	12

Site	Location/Street	X	Y	NO ₂ µg/m ³	NO ₂ µg/m ³ (Adjusted)	Type	Sample size
20	Acton's Farm	575095	110225	11	13	Rural	12
21	Glover's Farm	574650	109325	16	20	Rural	13
22	Pebsham Farm	576605	109065	14	17	Rural	13
23	Permanent AQMS. Co-located with Pebsham Landfill monitoring site A 259	577738	108802	27	29	Co-located and Kerbside	5
24	Permanent AQMS. De La Warr Rd	576005	108118	27	29	Co-located and Kerbside	13
25	Lullington Heath	553780	101620	10	12	Rural Lullington Heath	13