

**A57 Link Roads
TR010034**

**6.5 Environmental Statement
Appendix 5.3: Further Details on Air
Quality Modelling**

APFP Regulation 5 (2) (q)

Planning Act 2008 Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009

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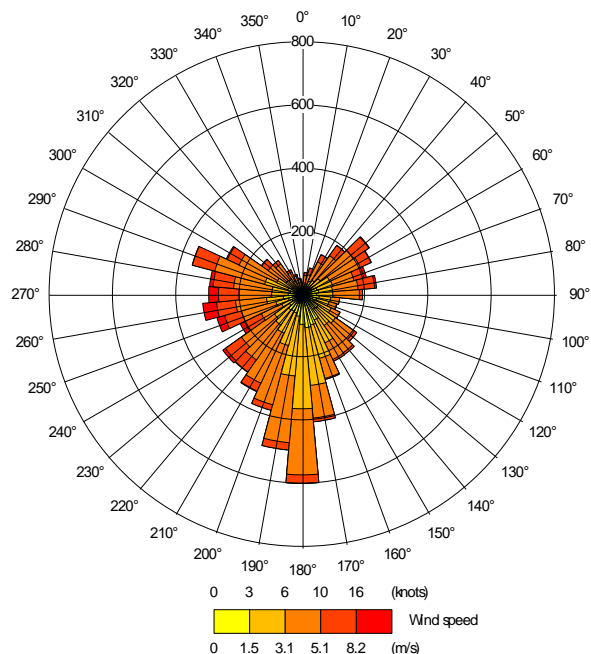
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1. Further Details on Air Quality Modelling

1.1 Air Quality Dispersion Modelling Setup

- 1.1.1 The dispersion model was set up based on the following key inputs and assumptions:
- Road sources were modelled using the ADMS-Roads source representation tool.
 - Ordnance Survey Master Map base mapping was used to define the road geometry.
 - A single centreline was entered in the model for modelled roads, with the exception of dual carriageways and motorway links which have a centreline included for both carriageway directions.
 - Road widths have been measured in GIS from Ordnance Survey Master Map data.
- 1.1.2 Hourly sequential meteorological data for 2018 Manchester Airport meteorological station was used. The parameters required by the model included: date, time, wind direction (angle wind blowing from), wind speed (at 10 metres above ground level), surface air temperature (degrees Celsius), and cloud cover (oktas – or eighths of sky covered).
- 1.1.3 A latitude of 53 degrees was selected. This determines times of sunrise and sunset for each day throughout the year, which in turn affects stability calculations.
- 1.1.4 Surface roughness coefficients have been defined as 1.0 metres (representative of cities, woodlands) for the air quality study area and 0.3 metres (representative of agricultural area max) for the meteorological station. The surface roughness is important in the approximation of turbulent conditions within the atmospheric boundary layer and thus in the estimation of pollutant concentrations at receptors.
- 1.1.5 Minimum Monin-Obukhov length (to reasonably limit the occurrence of very stable atmospheric conditions) has been defined as 10 metres (representative of small towns with a population of less than 10,000) for the air quality study area and 30 metres (representative of cities and large towns) for the meteorological station. This parameter limits the occurrence of very stable boundary layer conditions (i.e. when the air is still) to a degree that is appropriate to the general land-use. In general, the potential for very stable conditions is lowest in large urban areas where the 'heat island' effect promoting turbulent motion in the boundary layer is strongest.
- 1.1.6 A wind rose for the Manchester 2018 met station is shown below in Insert A-1.

Insert A-1: Wind Rose for Manchester 2018 Meteorological Station



1.1.7 The effects of road gradient are important in some locations within the air quality model area. Following recommendations in analytical assurance work in 2019, the gradient effect on vehicle emissions has been calculated using the latest available tools at the time of the assessment (DEFRA Emission Factor Toolkit (EFT) v10.1) and applied to Highways England speed-band emission factors. Gradients effects have been applied at the following locations in the air quality model area where the road gradient was estimated to be 6% or more:

- Glossop Road at the Dinting Vale junction.
- Mottram Moor and A6018 Back Moor between Carrhouse Lane and A6018 Roe Cross Road.
- A6018 Roe Cross Road either side of the junction with Edge Lane.

1.2 Air Quality Receptors

Human Health Receptors

1.2.1 There are 621 human health receptors in the air quality study area. All receptors were modelled at a height of 1.5 m above ground to reflect worst case average human exposure. Details of the receptors assessed are presented in Table A-1.

Table A-1 Discrete Human Health Receptors Included in the Air Quality Dispersion Model

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R1	Market Street	399324	395629	Mottram - S A57	Mottram	Tameside
R2	Market Street	399311	395624	Mottram - S A57	Mottram	Tameside
R3	Market Street	399326	395621	Non A Road/Suburban	Mottram	Tameside
R4	Stalybridge Road	399314	395655	Mottram - S A57	Mottram	Tameside
R5	Mottram Moor	399339	395656	Mottram - S A57	Mottram	Tameside
R6	Market Street	399315	395615	Non A Road/Suburban	Mottram	Tameside
R7	Market Street	399315	395609	Non A Road/Suburban	Mottram	Tameside
R8	Hyde Road	399290	395622	Mottram - S A57	Mottram	Tameside
R9	Stalybridge Road	399297	395658	Mottram - N A57	Mottram	Tameside
R10	Stalybridge Road	399293	395667	Mottram - N A57	Mottram	Tameside
R11	Market Street	399327	395603	Non A Road/Suburban	Mottram	Tameside
R12	Market Street	399319	395563	Non A Road/Suburban	Mottram	Tameside
R13	Market Street	399329	395594	Non A Road/Suburban	Mottram	Tameside
R14	Market Street	399327	395608	Non A Road/Suburban	Mottram	Tameside
R15	Market Street	399330	395584	Non A Road/Suburban	Mottram	Tameside
R16	Market Street	399331	395565	Non A Road/Suburban	Mottram	Tameside
R17	Market Street	399316	395599	Non A Road/Suburban	Mottram	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R18	Back Moor	399434	395818	Mottram - S A57	Mottram	Tameside
R19	Mottram Moor	399539	395792	Mottram - S A57	Mottram	Tameside
R20	Market Street	400367	396005	Mottram - S A57	Hollingworth	Tameside
R21	Market Street	400373	395999	A57	Hollingworth	Tameside
R22	Market Street	400373	396010	Mottram - S A57	Hollingworth	Tameside
R23	Market Street	400377	396013	Mottram - S A57	Hollingworth	Tameside
R24	Market Street	400380	396016	Mottram - S A57	Hollingworth	Tameside
R25	Market Street	400384	396019	Mottram - S A57	Hollingworth	Tameside
R26	Market Street	400388	396022	Mottram - S A57	Hollingworth	Tameside
R27	Market Street	400392	396025	Mottram - S A57	Hollingworth	Tameside
R28	Market Street	400399	396031	Mottram - S A57	Hollingworth	Tameside
R29	Market Street	400406	396036	Mottram - S A57	Hollingworth	Tameside
R30	Market Street	400410	396039	Mottram - S A57	Hollingworth	Tameside
R31*	Market Street	400377	396032	Mottram - N A57	Hollingworth	Tameside
R32	Market Street	400424	396050	Mottram - S A57	Hollingworth	Tameside
R33	Market Street	400409	396057	Mottram - N A57	Hollingworth	Tameside
R34	Market Street	400402	396051	Mottram - N A57	Hollingworth	Tameside
R35	Church Road	400478	395989	A57	Hollingworth	Tameside
R36	Market Street	400397	396047	Mottram - N A57	Hollingworth	Tameside
R37	Market Street	400440	396063	Mottram - S A57	Hollingworth	Tameside
R38	Woolley Lane	400381	395994	A57	Hollingworth	Tameside
R39	Woolley Lane	400385	395991	A57	Hollingworth	Tameside
R40	Woolley Lane	400388	395989	A57	Hollingworth	Tameside
R41	Woolley Lane	400395	395984	A57	Hollingworth	Tameside
R42	Woolley Lane	400392	395986	A57	Hollingworth	Tameside
R43	Woolley Lane	400403	395979	A57	Hollingworth	Tameside
R44	Woolley Lane	400406	395976	A57	Hollingworth	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R45	Market Street	400476	396120	A628	Hollingworth	Tameside
R46	Market Street	400484	396109	A628	Hollingworth	Tameside
R47	Mottram Moor	399535	395775	Mottram - S A57	Mottram	Tameside
R48	Woolley Lane	400457	395949	A57	Hollingworth	Tameside
R49	Woolley Lane	400425	395968	A57	Hollingworth	Tameside
R50	Woolley Lane	400437	395961	A57	Hollingworth	Tameside
R51	Woolley Lane	400464	395945	A57	Hollingworth	Tameside
R52*	Woolley Lane	400495	395920	A57	Hollingworth	Tameside
R53*	Woolley Lane	400510	395906	A57	Hollingworth	Tameside
R54	Woolley Lane	400541	395879	A57	Hollingworth	Tameside
R55	Mottram Moor	400468	395924	A57	Hollingworth	Tameside
R56	Woolley Bridge Road	400950	395788	A57	Glossop	Tameside
R57	Woolley Bridge Road	400966	395800	A57	Glossop	Tameside
R58	Market Street	400560	396193	A628	Hollingworth	Tameside
R59	Market Street	400653	396244	A628	Hollingworth	Tameside
R60	Market Street	400695	396282	A628	Hollingworth	Tameside
R61	Market Street	400773	396332	A628	Hollingworth	Tameside
R62	Market Street	400752	396336	A628	Hollingworth	Tameside
R63	Manchester Road	400942	396424	A628	Hollingworth	Tameside
R64	Manchester Road	401191	396967	A628	Tintwistle	High Peak
R65	Manchester Road	401204	396956	A628	Tintwistle	High Peak
R66	Manchester Road	401207	396959	A628	Tintwistle	High Peak
R67	Manchester Road	401221	396971	A628	Tintwistle	High Peak
R68	Manchester Road	401228	396977	A628	Tintwistle	High Peak
R69	Dinting Vale	401948	394425	A57	Glossop	High Peak
R70	Dinting Vale	401941	394430	A57	Glossop	High Peak

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R71	Dinting Vale	401901	394461	A57	Glossop	High Peak
R72	Dinting Vale	401937	394433	A57	Glossop	High Peak
R73	Market Street	400349	396025	Mottram - N A57	Hollingworth	Tameside
R74	Market Street	400381	396034	Mottram - N A57	Hollingworth	Tameside
R75	Stanley Road	390985	395501	M60 - Motorway	Denton	Tameside
R76	Stanley Road	390987	395479	M60 - Motorway	Denton	Tameside
R77*	Thompson Road	390990	395433	M60 - Motorway	Denton	Tameside
R78*	Thompson Road	391030	395129	M60 - Motorway	Denton	Tameside
R79	Thompson Close	391033	395073	M60 - Motorway	Denton	Tameside
R80	Melyncourt Drive	398348	395331	M67 - Motorway	Mottram	Tameside
R81	Hyde Road	398366	395405	M67 - Motorway	Mottram	Tameside
R82	Colbourne Way	398462	395098	Non A Road/ Suburban	Mottram	Tameside
R83	Dewsnap Way	398476	394972	Non A Road/ Suburban	Mottram	Tameside
R84	Underwood Road	398475	394937	Non A Road/ Suburban	Hyde	Tameside
R85	Market Place	399320	395427	Non A Road/ Suburban	Mottram	Tameside
R86	Marple Road	400517	392896	Non A Road/ Suburban	Charlesworth	High Peak
R87	Mottram Road	398478	396621	Mottram Rise	Stalybridge	Tameside
R88	Roe Cross Road	398836	396329	Mottram Rise	Mottram	Tameside
R89	Four Lanes	399071	395985	Mottram Rise	Mottram	Tameside
R90	Roe Cross Road	399192	395949	Mottram Rise	Mottram	Tameside
R91	Back Moor	399217	395932	Mottram - N A57	Mottram	Tameside
R92	Stalybridge Road	399209	395913	Mottram Rise	Mottram	Tameside
R93	Hyde Road	398899	395515	Mottram - N A57	Mottram	Tameside
R94	Hyde Road	399290	395637	Mottram - N A57	Mottram	Tameside
R95	Mottram Moor	399316	395639	Mottram - S A57	Mottram	Tameside
R96	Mottram Moor	399540	395802	Mottram - S A57	Mottram	Tameside
R97	Mottram Moor	399652	395817	Mottram - N A57	Mottram	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R98	Mottram Moor	399706	395827	Mottram - N A57	Mottram	Tameside
R99	Mottram Moor	399802	395849	Mottram - N A57	Mottram	Tameside
R100	Mottram Moor	399944	395855	Mottram - S A57	Hollingworth	Tameside
R101	Market Street	400376	395997	A57	Hollingworth	Tameside
R102	Market Street	400370	396008	Mottram - S A57	Hollingworth	Tameside
R103	Woolley Bridge	401031	395640	A57	Glossop	High Peak
R104	Woolley Bridge	401058	395531	A57	Glossop	High Peak
R105	Manchester Road	401076	396669	A628	Hollingworth	High Peak
R106	Manchester Road	401200	396953	A628	Tintwistle	High Peak
R107	Mottram Moor	400039	395918	Mottram - N A57	Hollingworth	Tameside
R108	Mottram Moor	400278	395985	Mottram - S A57	Hollingworth	Tameside
R109	Manchester Road South	391568	395492	M67 - Motorway	Denton	Tameside
R110	Lake Road	392493	395779	M67 - Motorway	Denton	Tameside
R111	Wellington Street	394205	395319	M67 - Motorway	Hyde	Tameside
R112	Brook Street	395363	395148	M67 - Motorway	Hyde	Tameside
R113	John Street	394935	395210	M67 - Motorway	Hyde	Tameside
R114	Victoria Street	396501	396255	Non A Road/ Suburban	Hyde	Tameside
R115	Glossop Road	400560	392896	Non A Road/ Suburban	Charlesworth	High Peak
R116	Stanley Road	390985	395508	M60 - Motorway	Denton	Tameside
R117	Stalybridge Road	399299	395654	Mottram - N A57	Mottram	Tameside
R118	Mottram Moor	399611	395814	Mottram - N A57	Mottram	Tameside
R119	Mottram Moor	399612	395785	Mottram - S A57	Mottram	Tameside
R120	Mottram Moor	399908	395875	Mottram - N A57	Hollingworth	Tameside
R121	Market Street	400388	396039	Mottram - N A57	Hollingworth	Tameside
R122	Woolley Lane	400910	395800	A57	Hollingworth	Tameside
R123	Woolley Bridge Road	400944	395803	A57	Glossop	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R124	Carrhouse Lane	400151	395774	Non A Road/ Suburban	Hollingworth	Tameside
R125	Woolley Bridge	401068	395567	A57	Glossop	High Peak
R126	Norfolk Street	403548	394313	Non A Road/ Suburban	Glossop	High Peak
R127	High Street East	403762	394087	A57	Glossop	High Peak
R128	Glossop Road	400585	392928	Non A Road/ Suburban	Charlesworth	High Peak
R129	Church Brow	399345	395433	Non A Road/ Suburban	Mottram	Tameside
R130	New Road	401940	397275	A628	Tintwistle	High Peak
R131	A57 Snake Road	419581	386465	A57	Hope Valley	High Peak
R132	Four Lanes	399044	395972	Mottram Rise	Mottram	Tameside
R133	Old Hall Lane	399218	396041	Mottram Rise	Mottram	Tameside
R134	Old Road	399173	396019	Mottram Rise	Mottram	Tameside
R135	Tollemache Close	399210	396116	Mottram Rise	Mottram	Tameside
R136	Old Road	399137	396084	Mottram Rise	Mottram	Tameside
R137	Roe Cross Green	398981	396205	Mottram Rise	Mottram	Tameside
R138	Victoria Street	396530	396274	Non A Road/ Suburban	Hyde	Tameside
R139	Victoria Street	395388	395663	Non A Road/ Suburban	Hyde	Tameside
R140	Dinting Vale	401794	394507	Dinting Vale Junction	Glossop	High Peak
R141	Dinting Vale	401816	394502	Dinting Vale Junction	Glossop	High Peak
R142	Dinting Vale	401802	394505	Dinting Vale Junction	Glossop	High Peak
R143	Dinting Vale	401806	394504	Dinting Vale Junction	Glossop	High Peak
R144	Dinting Vale	401811	394503	Dinting Vale Junction	Glossop	High Peak
R145	Dinting Vale	401863	394477	Dinting Vale Junction	Glossop	High Peak
R146	Dinting Vale	401859	394480	Dinting Vale Junction	Glossop	High Peak
R147	Dinting Vale	401848	394483	Dinting Vale Junction	Glossop	High Peak
R148	Dinting Vale	401846	394490	Dinting Vale Junction	Glossop	High Peak
R149	Dinting Vale	401851	394481	Dinting Vale Junction	Glossop	High Peak
R150	Mottram Moor	399320	395658	Mottram - S A57	Mottram	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R151	Mottram Moor	399322	395644	Mottram - S A57	Mottram	Tameside
R152	Mottram Moor	399328	395648	Mottram - S A57	Mottram	Tameside
R153	Mottram Moor	399333	395652	Mottram - S A57	Mottram	Tameside
R154	Mottram Moor	399350	395687	Mottram - S A57	Mottram	Tameside
R155	Mottram Moor	399353	395689	Mottram - S A57	Mottram	Tameside
R156	Mottram Moor	399356	395692	Mottram - S A57	Mottram	Tameside
R157	Mottram Moor	399360	395696	Mottram - S A57	Mottram	Tameside
R158	Mottram Moor	399363	395699	Mottram - S A57	Mottram	Tameside
R159	Mottram Moor	399365	395701	Mottram - S A57	Mottram	Tameside
R160	Mottram Moor	399372	395707	Mottram - S A57	Mottram	Tameside
R161	Mottram Moor	399345	395661	Mottram - S A57	Mottram	Tameside
R162	Mottram Moor	399348	395663	Mottram - S A57	Mottram	Tameside
R163	Mottram Moor	399352	395667	Mottram - S A57	Mottram	Tameside
R164	Mottram Moor	399356	395670	Mottram - S A57	Mottram	Tameside
R165	Mottram Moor	399359	395673	Mottram - S A57	Mottram	Tameside
R166	Mottram Moor	399400	395700	Mottram - S A57	Mottram	Tameside
R167	Mottram Moor	399498	395763	Mottram - S A57	Mottram	Tameside
R168	Mottram Moor	399380	395719	Mottram - S A57	Mottram	Tameside
R169	Mottram Moor	399403	395736	Mottram - S A57	Mottram	Tameside
R170	Mottram Moor	399406	395739	Mottram - S A57	Mottram	Tameside
R171	Mottram Moor	399409	395741	Mottram - S A57	Mottram	Tameside
R172	Mottram Moor	399412	395744	Mottram - S A57	Mottram	Tameside
R173	Mottram Moor	399426	395760	Mottram - S A57	Mottram	Tameside
R174	Back Moor	399470	395791	Mottram - S A57	Mottram	Tameside
R175	Back Moor	399505	395800	Mottram - S A57	Mottram	Tameside
R176	Back Moor	399507	395793	Mottram - S A57	Mottram	Tameside
R177	Mottram Moor	399600	395783	Mottram - S A57	Mottram	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R178	Mottram Moor	399630	395816	Mottram - N A57	Mottram	Tameside
R179	Mottram Moor	399634	395816	Mottram - N A57	Mottram	Tameside
R180	Mottram Moor	399638	395816	Mottram - N A57	Mottram	Tameside
R181	Mottram Moor	399643	395816	Mottram - N A57	Mottram	Tameside
R182	Mottram Moor	399647	395817	Mottram - N A57	Mottram	Tameside
R183	Mottram Moor	399701	395826	Mottram - N A57	Mottram	Tameside
R184	Mottram Moor	399697	395825	Mottram - N A57	Mottram	Tameside
R185	Mottram Moor	399693	395824	Mottram - N A57	Mottram	Tameside
R186	Mottram Moor	399806	395850	Mottram - N A57	Mottram	Tameside
R187	Mottram Moor	399815	395852	Mottram - N A57	Mottram	Tameside
R188	Mottram Moor	399819	395853	Mottram - N A57	Mottram	Tameside
R189	Mottram Moor	399823	395854	Mottram - N A57	Mottram	Tameside
R190	Mottram Moor	399828	395855	Mottram - N A57	Mottram	Tameside
R191	Mottram Moor	399838	395858	Mottram - N A57	Mottram	Tameside
R192	Mottram Moor	399842	395859	Mottram - N A57	Mottram	Tameside
R193	Mottram Moor	399852	395861	Mottram - N A57	Mottram	Tameside
R194	Mottram Moor	399856	395863	Mottram - N A57	Mottram	Tameside
R195	Mottram Moor	399874	395868	Mottram - N A57	Mottram	Tameside
R196	Mottram Moor	399878	395869	Mottram - N A57	Mottram	Tameside
R197	Mottram Moor	399882	395871	Mottram - N A57	Mottram	Tameside
R198	Mottram Moor	399887	395872	Mottram - N A57	Mottram	Tameside
R199	Mottram Moor	399891	395874	Mottram - N A57	Mottram	Tameside
R200	Mottram Moor	399895	395875	Mottram - N A57	Mottram	Tameside
R201	Mottram Moor	399918	395878	Mottram - N A57	Hollingworth	Tameside
R202	Mottram Moor	399925	395880	Mottram - N A57	Hollingworth	Tameside
R203	Mottram Moor	399934	395883	Mottram - N A57	Hollingworth	Tameside
R204	Mottram Moor	399938	395885	Mottram - N A57	Hollingworth	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R205	Mottram Moor	399942	395886	Mottram - N A57	Hollingworth	Tameside
R206	Mottram Moor	399947	395887	Mottram - N A57	Hollingworth	Tameside
R207	Mottram Moor	399953	395890	Mottram - N A57	Hollingworth	Tameside
R208	Mottram Moor	399971	395895	Mottram - N A57	Hollingworth	Tameside
R209	Mottram Moor	399974	395896	Mottram - N A57	Hollingworth	Tameside
R210	Mottram Moor	399979	395898	Mottram - N A57	Hollingworth	Tameside
R211	Mottram Moor	399983	395899	Mottram - N A57	Hollingworth	Tameside
R212	Mottram Moor	399990	395901	Mottram - N A57	Hollingworth	Tameside
R213	Mottram Moor	399995	395903	Mottram - N A57	Hollingworth	Tameside
R214	Mottram Moor	399999	395905	Mottram - N A57	Hollingworth	Tameside
R215	Mottram Moor	400004	395906	Mottram - N A57	Hollingworth	Tameside
R216	Mottram Moor	400010	395909	Mottram - N A57	Hollingworth	Tameside
R217	Mottram Moor	400014	395910	Mottram - N A57	Hollingworth	Tameside
R218	Mottram Moor	400018	395912	Mottram - N A57	Hollingworth	Tameside
R219	Mottram Moor	400022	395913	Mottram - N A57	Hollingworth	Tameside
R220	Mottram Moor	400043	395920	Mottram - N A57	Hollingworth	Tameside
R221	Mottram Moor	400046	395921	Mottram - N A57	Hollingworth	Tameside
R222	Mottram Moor	400050	395922	Mottram - N A57	Hollingworth	Tameside
R223	Mottram Moor	400054	395924	Mottram - N A57	Hollingworth	Tameside
R224	Mottram Moor	400058	395926	Mottram - N A57	Hollingworth	Tameside
R225	Back Moor	399410	395816	Mottram - S A57	Mottram	Tameside
R226	Back Moor	399394	395822	Mottram - S A57	Mottram	Tameside
R227	Back Moor	399363	395832	Mottram - S A57	Mottram	Tameside
R228	Back Moor	399349	395839	Mottram - S A57	Mottram	Tameside
R229	Back Moor	399331	395846	Mottram - S A57	Mottram	Tameside
R230	Back Moor	399308	395855	Mottram - S A57	Mottram	Tameside
R231	Back Moor	399292	395862	Mottram - S A57	Mottram	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R232	Lodge Court	399302	395887	Mottram - N A57	Mottram	Tameside
R233	Lodge Court	399339	395871	Mottram - N A57	Mottram	Tameside
R234	Back Moor	399391	395859	Mottram - N A57	Mottram	Tameside
R235	Back Moor	399423	395842	Mottram - N A57	Mottram	Tameside
R236	Back Moor	399419	395843	Mottram - N A57	Mottram	Tameside
R237	Back Moor	399414	395844	Mottram - N A57	Mottram	Tameside
R238	Back Moor	399410	395845	Mottram - N A57	Mottram	Tameside
R239	Back Moor	399407	395846	Mottram - N A57	Mottram	Tameside
R240	Back Moor	399275	395872	Mottram - S A57	Mottram	Tameside
R241	Back Moor	399278	395908	Mottram - N A57	Mottram	Tameside
R242	Back Moor	399244	395914	Mottram - N A57	Mottram	Tameside
R243	Back Moor	399239	395917	Mottram - N A57	Mottram	Tameside
R244	Back Moor	399236	395920	Mottram - N A57	Mottram	Tameside
R245	Back Moor	399232	395922	Mottram - N A57	Mottram	Tameside
R246	Back Moor	399229	395924	Mottram - N A57	Mottram	Tameside
R247	Hyde Road	399270	395634	Mottram - N A57	Mottram	Tameside
R248	Hyde Road	399248	395624	Mottram - N A57	Mottram	Tameside
R249	Hyde Road	399223	395617	Mottram - N A57	Mottram	Tameside
R250	Hyde Road	399212	395613	Mottram - N A57	Mottram	Tameside
R251	Littlefields	399195	395615	Mottram - N A57	Mottram	Tameside
R252	Littlefields	399188	395612	Mottram - N A57	Mottram	Tameside
R253	Littlefields	399180	395610	Mottram - N A57	Mottram	Tameside
R254	Hyde Road	399172	395599	Mottram - N A57	Mottram	Tameside
R255	Hyde Road	399168	395598	Mottram - N A57	Mottram	Tameside
R256	Hyde Road	399163	395596	Mottram - N A57	Mottram	Tameside
R257	Hyde Road	399150	395601	Mottram - N A57	Mottram	Tameside
R258	Hyde Road	399134	395596	Mottram - N A57	Mottram	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R259	Hyde Road	399117	395590	Mottram - N A57	Mottram	Tameside
R260	Hyde Road	399104	395585	Mottram - N A57	Mottram	Tameside
R261	Hyde Road	399092	395579	Mottram - N A57	Mottram	Tameside
R262	Hyde Road	399083	395576	Mottram - N A57	Mottram	Tameside
R263	Hyde Road	399076	395574	Mottram - N A57	Mottram	Tameside
R264	Hyde Road	399067	395571	Mottram - N A57	Mottram	Tameside
R265	Hyde Road	399060	395570	Mottram - N A57	Mottram	Tameside
R266	Hyde Road	399044	395565	Mottram - N A57	Mottram	Tameside
R267	Hyde Road	399035	395562	Mottram - N A57	Mottram	Tameside
R268	Hyde Road	399026	395560	Mottram - N A57	Mottram	Tameside
R269	Hyde Road	399017	395557	Mottram - N A57	Mottram	Tameside
R270	Hyde Road	399003	395552	Mottram - N A57	Mottram	Tameside
R271	Hyde Road	398997	395550	Mottram - N A57	Mottram	Tameside
R272	Hyde Road	398988	395547	Mottram - N A57	Mottram	Tameside
R273	Hyde Road	398982	395545	Mottram - N A57	Mottram	Tameside
R274	Hyde Road	398974	395542	Mottram - N A57	Mottram	Tameside
R275	Hyde Road	398968	395540	Mottram - N A57	Mottram	Tameside
R276	Hyde Road	398953	395535	Mottram - N A57	Mottram	Tameside
R277	Hyde Road	398945	395533	Mottram - N A57	Mottram	Tameside
R278	Hyde Road	398937	395530	Mottram - N A57	Mottram	Tameside
R279	Hyde Road	398931	395528	Mottram - N A57	Mottram	Tameside
R280	Hyde Road	399266	395614	Mottram - S A57	Mottram	Tameside
R281	Hyde Road	399262	395613	Mottram - S A57	Mottram	Tameside
R282	Hyde Road	399256	395611	Mottram - S A57	Mottram	Tameside
R283	Hyde Road	399253	395610	Mottram - S A57	Mottram	Tameside
R284	Hyde Road	399246	395607	Mottram - S A57	Mottram	Tameside
R285	Hyde Road	399283	395617	Mottram - S A57	Mottram	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R286	Mottram Moor	400144	395940	Mottram - S A57	Hollingworth	Tameside
R287	Mottram Moor	400148	395941	Mottram - S A57	Hollingworth	Tameside
R288	Mottram Moor	400152	395943	Mottram - S A57	Hollingworth	Tameside
R289	Mottram Moor	400156	395944	Mottram - S A57	Hollingworth	Tameside
R290	Mottram Moor	400160	395946	Mottram - S A57	Hollingworth	Tameside
R291	Mottram Moor	400163	395947	Mottram - S A57	Hollingworth	Tameside
R292	Mottram Moor	400168	395949	Mottram - S A57	Hollingworth	Tameside
R293	Mottram Moor	400171	395950	Mottram - S A57	Hollingworth	Tameside
R294	Mottram Moor	400186	395955	Mottram - S A57	Hollingworth	Tameside
R295	Mottram Moor	400191	395957	Mottram - S A57	Hollingworth	Tameside
R296	Mottram Moor	400238	395972	Mottram - S A57	Hollingworth	Tameside
R297	Mottram Moor	400243	395973	Mottram - S A57	Hollingworth	Tameside
R298	Mottram Moor	400247	395975	Mottram - S A57	Hollingworth	Tameside
R299	Mottram Moor	400252	395976	Mottram - S A57	Hollingworth	Tameside
R300	Mottram Moor	400257	395978	Mottram - S A57	Hollingworth	Tameside
R301	Mottram Moor	400262	395980	Mottram - S A57	Hollingworth	Tameside
R302	Mottram Moor	400230	395961	Mottram - S A57	Hollingworth	Tameside
R303	Mottram Moor	400191	395941	Mottram - S A57	Hollingworth	Tameside
R304	Mottram Moor	400245	395958	Mottram - S A57	Hollingworth	Tameside
R305	Mottram Moor	400251	395960	Mottram - S A57	Hollingworth	Tameside
R306	Mottram Moor	400284	395971	Mottram - S A57	Hollingworth	Tameside
R307	Carrhouse Lane	400104	395908	Mottram - S A57	Hollingworth	Tameside
R308	Carrhouse Lane	400044	395876	Mottram - S A57	Hollingworth	Tameside
R309	Mottram Road	398157	396809	Mottram Rise	Stalybridge	Tameside
R310	Mottram Road	398136	396848	Mottram Rise	Stalybridge	Tameside
R311	Woodlands Road	397583	397151	Mottram Rise	Stalybridge	Tameside
R312	Mottram Road	397534	397142	Mottram Rise	Stalybridge	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R313	Mottram Road	397338	397610	Mottram Rise	Stalybridge	Tameside
R314	Mottram Road	397318	397612	Mottram Rise	Stalybridge	Tameside
R315	Mottram Road	396906	398254	Mottram Rise	Stalybridge	Tameside
R316	Mottram Road	396830	398392	Mottram Rise	Stalybridge	Tameside
R317	Dinting Vale	401945	394427	A57	Glossop	High Peak
R318	Glossop Road	401771	394509	Dinting Vale Junction	Glossop	High Peak
R319	Dinting Vale	401760	394526	Dinting Vale Junction	Glossop	High Peak
R320	Dinting Vale	401933	394437	A57	Glossop	High Peak
R321	Dinting Vale	401801	394505	Dinting Vale Junction	Glossop	High Peak
R322	Dinting Vale	401853	394480	Dinting Vale Junction	Glossop	High Peak
R323	Dinting Vale	401820	394501	Dinting Vale Junction	Glossop	High Peak
R324	Dinting Vale	401909	394456	A57	Glossop	High Peak
R325	Adderley Road	401925	394427	A57	Glossop	High Peak
R326	Market Street	400394	396044	Mottram - N A57	Hollingworth	Tameside
R327	Manchester Road	401747	397237	A628	Tintwistle	High Peak
R328	Manchester Road	401831	397247	A628	Tintwistle	High Peak
R329	Manchester Road	401686	397247	A628	Tintwistle	High Peak
R330	Manchester Road	401935	397274	A628	Tintwistle	High Peak
R331	Manchester Road	401691	397247	A628	Tintwistle	High Peak
R332	Manchester Road	401806	397257	A628	Tintwistle	High Peak
R333	Manchester Road	401733	397255	A628	Tintwistle	High Peak
R334	Manchester Road	401849	397266	A628	Tintwistle	High Peak
R335	Church Street	402052	397286	A628	Tintwistle	High Peak
R336	Church Street	402077	397283	A628	Tintwistle	High Peak
R337	Church Street	402086	397281	A628	Tintwistle	High Peak
R338	Highfield Gardens	400528	396140	A628	Hollingworth	Tameside
R339	Manchester Road	401078	396646	A628	Hollingworth	High Peak

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R340	Market Street	400825	396377	A628	Hollingworth	Tameside
R341	Manchester Road	401646	397244	A628	Tintwistle	High Peak
R342	Market Street	400537	396184	A628	Hollingworth	Tameside
R343	Old Road	401963	397298	A628	Tintwistle	High Peak
R344	Manchester Road	401895	397266	A628	Tintwistle	High Peak
R345	Market Street	400637	396224	A628	Hollingworth	Tameside
R346	Manchester Road	401818	397244	A628	Tintwistle	High Peak
R347	New Road	401947	397254	A628	Tintwistle	High Peak
R348	Highfield Gardens	400529	396141	A628	Hollingworth	Tameside
R349	Manchester Road	401801	397256	A628	Tintwistle	High Peak
R350	Manchester Road	401835	397248	A628	Tintwistle	High Peak
R351	King Street	400768	396361	A628	Hollingworth	Tameside
R352	Highfield Gardens	400523	396135	A628	Hollingworth	Tameside
R353	Manchester Road	401822	397259	A628	Tintwistle	High Peak
R354	Market Street	400852	396392	A628	Hollingworth	Tameside
R355	Market Street	400935	396416	A628	Hollingworth	Tameside
R356	Manchester Road	401797	397242	A628	Tintwistle	High Peak
R357	Manchester Road	401886	397263	A628	Tintwistle	High Peak
R358	Market Street	400397	396029	Mottram - S A57	Hollingworth	Tameside
R359	Church Street	402039	397288	A628	Tintwistle	High Peak
R360	Manchester Road	401817	397258	A628	Tintwistle	High Peak
R361	Church Street	401955	397269	A628	Tintwistle	High Peak
R362	Market Street	400843	396364	A628	Hollingworth	Tameside
R363	Market Street	400660	396271	A628	Hollingworth	Tameside
R364	Market Street	400924	396410	A628	Hollingworth	Tameside
R365	Market Street	400420	396046	Mottram - S A57	Hollingworth	Tameside
R366	Market Street	400515	396172	A628	Hollingworth	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R367	Manchester Road	401711	397258	A628	Tintwistle	High Peak
R368	Manchester Road	401080	396626	A628	Hollingworth	High Peak
R369	Manchester Road	401211	396962	A628	Tintwistle	High Peak
R370	Manchester Road	401929	397272	A628	Tintwistle	High Peak
R371	Manchester Road	401778	397253	A628	Tintwistle	High Peak
R372	Market Street	400552	396187	A628	Hollingworth	Tameside
R373	Old Road	401959	397297	A628	Tintwistle	High Peak
R374	Market Street	400605	396198	A628	Hollingworth	Tameside
R375	Market Street	400640	396227	A628	Hollingworth	Tameside
R376	Market Street	400820	396375	A628	Hollingworth	Tameside
R377	Manchester Road	401598	397240	A628	Tintwistle	High Peak
R378	Manchester Road	401194	396966	A628	Tintwistle	High Peak
R379	Manchester Road	401840	397263	A628	Tintwistle	High Peak
R380	Manchester Road	401620	397242	A628	Tintwistle	High Peak
R381	West Street	401780	397230	A628	Tintwistle	High Peak
R382	Market Street	400873	396403	A628	Hollingworth	Tameside
R383	Manchester Road	401574	397239	A628	Tintwistle	High Peak
R384	Manchester Road	401753	397252	A628	Tintwistle	High Peak
R385	Manchester Road	401890	397265	A628	Tintwistle	High Peak
R386	Manchester Road	401582	397209	A628	Tintwistle	High Peak
R387	Manchester Road	401224	396974	A628	Tintwistle	High Peak
R388	Manchester Road	401629	397243	A628	Tintwistle	High Peak
R389	Church Street	402072	397284	A628	Tintwistle	High Peak
R390	Church Street	402093	397281	A628	Tintwistle	High Peak
R391	Manchester Road	401882	397277	A628	Tintwistle	High Peak
R392	Church Street	402105	397279	A628	Tintwistle	High Peak
R393	Manchester Road	401733	397236	A628	Tintwistle	High Peak

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R394	Manchester Road	401611	397245	A628	Tintwistle	High Peak
R395	Manchester Road	401794	397255	A628	Tintwistle	High Peak
R396	Manchester Road	401886	397278	A628	Tintwistle	High Peak
R397	Manchester Road	401792	397241	A628	Tintwistle	High Peak
R398	Church Street	402044	397288	A628	Tintwistle	High Peak
R399	Manchester Road	401078	396641	A628	Hollingworth	High Peak
R400	Manchester Road	401077	396659	A628	Hollingworth	High Peak
R401	Manchester Road	401076	396664	A628	Hollingworth	High Peak
R402	Manchester Road	401082	396613	A628	Hollingworth	High Peak
R403	Market Street	400630	396218	A628	Hollingworth	Tameside
R404	Market Street	400940	396439	A628	Hollingworth	Tameside
R405	Market Street	400921	396428	A628	Hollingworth	Tameside
R406	Market Street	400482	396128	A628	Hollingworth	Tameside
R407	Market Street	400689	396296	A628	Hollingworth	Tameside
R408	Market Street	400667	396277	A628	Hollingworth	Tameside
R409	Gas Street	400705	396325	A628	Hollingworth	Tameside
R410	Highfield Gardens	400529	396141	A628	Hollingworth	Tameside
R411	Manchester Road	401077	396650	A628	Hollingworth	High Peak
R412	Market Street	400869	396401	A628	Hollingworth	Tameside
R413	Manchester Road	401814	397258	A628	Tintwistle	High Peak
R414	Church Street	402068	397284	A628	Tintwistle	High Peak
R415	West Street	401782	397226	A628	Tintwistle	High Peak
R416	Market Street	400673	396292	A628	Hollingworth	Tameside
R417	Market Street	400752	396320	A628	Hollingworth	Tameside
R418	Manchester Road	401802	397242	A628	Tintwistle	High Peak
R419	Market Street	400784	396339	A628	Hollingworth	Tameside
R420	Manchester Road	401890	397279	A628	Tintwistle	High Peak

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R421	Old Road	401983	397302	A628	Tintwistle	High Peak
R422	Church Street	402082	397282	A628	Tintwistle	High Peak
R423	Church Street	402062	397285	A628	Tintwistle	High Peak
R424	Hadfields Avenue	400778	396325	A628	Hollingworth	Tameside
R425	Market Street	400848	396390	A628	Hollingworth	Tameside
R426	Market Street	400913	396423	A628	Hollingworth	Tameside
R427	Manchester Road	401728	397249	A628	Tintwistle	High Peak
R428	Old Road	401956	397296	A628	Tintwistle	High Peak
R429	Market Street	400877	396405	A628	Hollingworth	Tameside
R430	Manchester Road	401079	396633	A628	Hollingworth	High Peak
R431	Manchester Road	401745	397256	A628	Tintwistle	High Peak
R432	Manchester Road	401827	397260	A628	Tintwistle	High Peak
R433	Market Street	400721	396300	A628	Hollingworth	Tameside
R434	Market Street	400829	396363	A628	Hollingworth	Tameside
R435	Market Street	400760	396325	A628	Hollingworth	Tameside
R436	West Street	401779	397234	A628	Tintwistle	High Peak
R437	Market Street	400776	396351	A628	Hollingworth	Tameside
R438	Old Road	401967	397299	A628	Tintwistle	High Peak
R439	Market Street	400778	396336	A628	Hollingworth	Tameside
R440	Market Street	400849	396367	A628	Hollingworth	Tameside
R441	Manchester Road	401858	397271	A628	Tintwistle	High Peak
R442	Manchester Road	401673	397246	A628	Tintwistle	High Peak
R443	Market Street	400388	396039	Mottram - N A57	Hollingworth	Tameside
R444	Market Street	400511	396168	A628	Hollingworth	Tameside
R445	Market Street	400577	396220	A628	Hollingworth	Tameside
R446	Manchester Road	401607	397244	A628	Tintwistle	High Peak
R447	Market Street	400667	396285	A628	Hollingworth	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R448	Market Street	400812	396370	A628	Hollingworth	Tameside
R449	Market Street	400956	396448	A628	Hollingworth	Tameside
R450	Market Street	400737	396310	A628	Hollingworth	Tameside
R451	Market Street	400579	396216	A628	Hollingworth	Tameside
R452	Market Street	400702	396305	A628	Hollingworth	Tameside
R453	Market Street	400926	396428	A628	Hollingworth	Tameside
R454	Market Street	400951	396445	A628	Hollingworth	Tameside
R455	Market Street	400970	396458	A628	Hollingworth	Tameside
R456	Market Street	400507	396165	A628	Hollingworth	Tameside
R457	Market Street	400691	396280	A628	Hollingworth	Tameside
R458	Manchester Road	401915	397285	A628	Tintwistle	High Peak
R459	Market Street	400709	396310	A628	Hollingworth	Tameside
R460	Manchester Road	401593	397240	A628	Tintwistle	High Peak
R461	Market Street	400600	396196	A628	Hollingworth	Tameside
R462	Market Street	400927	396412	A628	Hollingworth	Tameside
R463	Market Street	400493	396118	A628	Hollingworth	Tameside
R464	Market Street	400756	396338	A628	Hollingworth	Tameside
R465	Manchester Road	401722	397256	A628	Tintwistle	High Peak
R466	Manchester Road	401752	397237	A628	Tintwistle	High Peak
R467	Green Lane	400669	396298	A628	Hollingworth	Tameside
R468	Market Street	400443	396067	Mottram - S A57	Hollingworth	Tameside
R469	Manchester Road	401677	397246	A628	Tintwistle	High Peak
R470	Church Street	402012	397292	A628	Tintwistle	High Peak
R471	Manchester Road	401077	396655	A628	Hollingworth	High Peak
R472	Market Street	400486	396132	A628	Hollingworth	Tameside
R473	West Street	401777	397240	A628	Tintwistle	High Peak
R474	Market Street	400775	396351	A628	Hollingworth	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R475	Church Street	401973	397278	A628	Tintwistle	High Peak
R476	Old Road	401978	397301	A628	Tintwistle	High Peak
R477	Church Street	402057	397286	A628	Tintwistle	High Peak
R478	Manchester Road	401583	397239	A628	Tintwistle	High Peak
R479	Manchester Road	401765	397252	A628	Tintwistle	High Peak
R480	Market Street	400931	396414	A628	Hollingworth	Tameside
R481	Market Street	400526	396177	A628	Hollingworth	Tameside
R482	Market Street	400728	396336	A628	Hollingworth	Tameside
R483	Church Street	402024	397290	A628	Tintwistle	High Peak
R484	Manchester Road	401080	396617	A628	Hollingworth	High Peak
R485	Manchester Road	401933	397290	A628	Tintwistle	High Peak
R486	Manchester Road	401081	396622	A628	Hollingworth	High Peak
R487	Manchester Road	401906	397283	A628	Tintwistle	High Peak
R488	Market Street	400964	396453	A628	Hollingworth	Tameside
R489	Market Street	400612	396204	A628	Hollingworth	Tameside
R490	Manchester Road	401657	397245	A628	Tintwistle	High Peak
R491	Manchester Road	401836	397262	A628	Tintwistle	High Peak
R492	Market Street	400917	396406	A628	Hollingworth	Tameside
R493	Manchester Road	401910	397284	A628	Tintwistle	High Peak
R494	Market Street	400917	396426	A628	Hollingworth	Tameside
R495	Manchester Road	401649	397244	A628	Tintwistle	High Peak
R496	Manchester Road	401653	397245	A628	Tintwistle	High Peak
R497	Manchester Road	401944	397293	A628	Tintwistle	High Peak
R498	Market Street	400657	396249	A628	Hollingworth	Tameside
R499	Manchester Road	401770	397253	A628	Tintwistle	High Peak
R500	Market Street	400939	396419	A628	Hollingworth	Tameside
R501	Market Street	400855	396369	A628	Hollingworth	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R502	Market Street	400647	396233	A628	Hollingworth	Tameside
R503	Market Street	400768	396348	A628	Hollingworth	Tameside
R504	Market Street	401046	396484	A628	Hollingworth	High Peak
R505	Manchester Road	401948	397294	A628	Tintwistle	High Peak
R506	Manchester Road	401079	396637	A628	Hollingworth	High Peak
R507	Manchester Road	401951	397295	A628	Tintwistle	High Peak
R508	Manchester Road	401774	397253	A628	Tintwistle	High Peak
R509	Market Street	400624	396214	A628	Hollingworth	Tameside
R510	Green Lane	400658	396289	A628	Hollingworth	Tameside
R511	Hadfields Avenue	400777	396320	A628	Hollingworth	Tameside
R512	Market Street	400733	396340	A628	Hollingworth	Tameside
R513	Market Street	400837	396361	A628	Hollingworth	Tameside
R514	Market Street	400532	396182	A628	Hollingworth	Tameside
R515	Market Street	400756	396322	A628	Hollingworth	Tameside
R516	Market Street	400883	396408	A628	Hollingworth	Tameside
R517	Market Street	400642	396231	A628	Hollingworth	Tameside
R518	Market Street	400729	396305	A628	Hollingworth	Tameside
R519	Moorfield Street	400834	396397	A628	Hollingworth	Tameside
R520	Market Street	400466	396117	A628	Hollingworth	Tameside
R521	Market Street	400813	396355	A628	Hollingworth	Tameside
R522	Market Street	400772	396349	A628	Hollingworth	Tameside
R523	Market Street	400821	396359	A628	Hollingworth	Tameside
R524	Market Street	400946	396442	A628	Hollingworth	Tameside
R525	Moorfield Street	400843	396397	A628	Hollingworth	Tameside
R526	Green Lane	400664	396288	A628	Hollingworth	Tameside
R527	Market Street	400616	396206	A628	Hollingworth	Tameside
R528	Market Street	400744	396315	A628	Hollingworth	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R529	Market Street	400764	396346	A628	Hollingworth	Tameside
R530	Market Street	400406	396054	Mottram - N A57	Hollingworth	Tameside
R531	Market Street	400741	396313	A628	Hollingworth	Tameside
R532	Market Street	400608	396201	A628	Hollingworth	Tameside
R533	Market Street	400619	396209	A628	Hollingworth	Tameside
R534	Market Street	400698	396303	A628	Hollingworth	Tameside
R535	Market Street	400403	396034	Mottram - S A57	Hollingworth	Tameside
R536	Market Street	400691	396299	A628	Hollingworth	Tameside
R537	Market Street	400748	396317	A628	Hollingworth	Tameside
R538	Market Street	400803	396366	A628	Hollingworth	Tameside
R539	Market Street	400865	396399	A628	Hollingworth	Tameside
R540	Manchester Road	401893	397280	A628	Tintwistle	High Peak
R541	Manchester Road	401902	397282	A628	Tintwistle	High Peak
R542	Manchester Road	401579	397239	A628	Tintwistle	High Peak
R543	Manchester Road	401625	397243	A628	Tintwistle	High Peak
R544	Manchester Road	401861	397272	A628	Tintwistle	High Peak
R545	Old Road	401987	397303	A628	Tintwistle	High Peak
R546	Church Street	402115	397278	A628	Tintwistle	High Peak
R547	Church Street	402097	397280	A628	Tintwistle	High Peak
R548	Manchester Road	401738	397236	A628	Tintwistle	High Peak
R549	Green Lane	400671	396295	A628	Hollingworth	Tameside
R550	Market Street	400469	396120	A628	Hollingworth	Tameside
R551	Manchester Road	401682	397247	A628	Tintwistle	High Peak
R552	Market Street	400825	396361	A628	Hollingworth	Tameside
R553	Manchester Road	401882	397262	A628	Tintwistle	High Peak
R554	Market Street	400811	396353	A628	Hollingworth	Tameside
R555	Market Street	400398	396048	Mottram - N A57	Hollingworth	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R556	Market Street	400793	396344	A628	Hollingworth	Tameside
R557	Market Street	400817	396357	A628	Hollingworth	Tameside
R558	Manchester Road	401665	397246	A628	Tintwistle	High Peak
R559	Market Street	400856	396394	A628	Hollingworth	Tameside
R560	Church Street	402033	397289	A628	Tintwistle	High Peak
R561	Church Street	402101	397280	A628	Tintwistle	High Peak
R562	Manchester Road	401200	396953	A628	Tintwistle	High Peak
R563	Manchester Road	401831	397261	A628	Tintwistle	High Peak
R564	Manchester Road	401783	397241	A628	Tintwistle	High Peak
R565	Market Street	400733	396308	A628	Hollingworth	Tameside
R566	Market Street	400756	396338	A628	Hollingworth	Tameside
R567	Market Street	401054	396500	A628	Hollingworth	High Peak
R568	Market Street	400800	396364	A628	Hollingworth	Tameside
R569	Manchester Road	401763	397252	A628	Tintwistle	High Peak
R570	Manchester Road	401827	397246	A628	Tintwistle	High Peak
R571	Manchester Road	401660	397245	A628	Tintwistle	High Peak
R572	Market Street	400713	396312	A628	Hollingworth	Tameside
R573	The Stocks	402139	397280	A628	Tintwistle	High Peak
R574	Manchester Road	401217	396968	A628	Tintwistle	High Peak
R575	Manchester Road	401879	397261	A628	Tintwistle	High Peak
R576	Church Street	402020	397291	A628	Tintwistle	High Peak
R577	Wood Street	400546	396198	A628	Hollingworth	Tameside
R578	Manchester Road	401587	397240	A628	Tintwistle	High Peak
R579	Manchester Road	401214	396965	A628	Tintwistle	High Peak
R580	Manchester Road	401923	397288	A628	Tintwistle	High Peak
R581	Market Street	400920	396408	A628	Hollingworth	Tameside
R582	Market Street	400807	396368	A628	Hollingworth	Tameside

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R583	Manchester Road	401823	397245	A628	Tintwistle	High Peak
R584	Manchester Road	401715	397258	A628	Tintwistle	High Peak
R585	West Street	401758	397252	A628	Tintwistle	High Peak
R586	Market Street	400633	396222	A628	Hollingworth	Tameside
R587	Reynard Street	395007	395044	M67 - Motorway	Hyde	Tameside
R588	Hyde Road	393175	395537	Non A Road/Suburban	Denton	Tameside
R589	Linden Close	393318	395491	Non A Road/Suburban	Denton	Tameside
R590	St. Anne's Road	393319	395575	M67 - Motorway	Denton	Tameside
R591	Manchester Road	392083	395493	Non A Road/Suburban	Denton	Tameside
R592	Shaw Lane	401477	395058	A57	Glossop	High Peak
R593	Shaw Lane	401726	395071	Non A Road/Suburban	Glossop	High Peak
R594	Higher Dinting	402403	394575	Non A Road/Suburban	Glossop	High Peak
R595	The View	402534	394522	Non A Road/Suburban	Glossop	High Peak
R596	Spire Hollin	402977	394728	Non A Road/Suburban	Glossop	High Peak
R597	Dinting Road	402830	394636	Non A Road/Suburban	Glossop	High Peak
R598	Dinting Road	403022	394797	Non A Road/Suburban	Glossop	High Peak
R599	Talbot Road	403293	394781	Non A Road/Suburban	Glossop	High Peak
R600	Norfolk Street	403699	394655	Non A Road/Suburban	Glossop	High Peak
R601	Matley Park Lane	397892	396681	Non A Road/Suburban	Stalybridge	Tameside
R602	Holland Street East	392057	395572	M67 - Motorway	Denton	Tameside
R603	Victoria Street	395820	395963	Non A Road/Suburban	Hyde	Tameside
R604	Talbot Road	396445	396306	Non A Road/Suburban	Hyde	Tameside
R605	Stockport Road East	392565	391794	Non A Road/Suburban	Bredbury	Stockport
R606	Stockport Road West	392071	391650	Non A Road/Suburban	Bredbury	Stockport
R607	Stockport Road East	392995	391926	Non A Road/Suburban	Bredbury	Stockport
R608	Stockport Road West	392494	391744	Non A Road/Suburban	Bredbury	Stockport

Receptor ID	Road name	X	Y	AQ Verification Area	Geographical Area	Local Authority
R609	Stockport Road East	392071	391650	Non A Road/Suburban	Bredbury	Stockport
R610	Stockport Road East	393155	391977	Non A Road/Suburban	Bredbury	Stockport
R611	Market Street (Broadbottom)	399348	393795	Non A Road/Suburban	Broadbottom	High Peak
R612	Mottram Road (Broadbottom)	398793	394007	Non A Road/Suburban	Broadbottom	Tameside
R613	Winslow Avenue	399090	394932	Non A Road/Suburban	Mottram	Tameside
R614	Market Street (Broadbottom)	399313	393812	Non A Road/Suburban	Broadbottom	High Peak
R615	Mottram Road (Broadbottom)	398953	393836	Non A Road/Suburban	Broadbottom	Tameside
R616	Broadbottom Road	398989	394686	Non A Road/Suburban	Mottram	Tameside
R617	Market Place	399330	395423	Non A Road/Suburban	Mottram	Tameside
R618	Broadbottom Road	399339	395398	Non A Road/Suburban	Mottram	Tameside
R619	Broadbottom Road	399254	395237	Non A Road/Suburban	Mottram	Tameside
R620	Broadbottom Road	399300	395286	Non A Road/Suburban	Mottram	Tameside
R621	Market Street (Hyde)	394704	395045	Non A Road/Suburban	Hyde	Tameside
* Indicates receptors that are only relevant for the 1 hour AQS objective						

Ecological Receptors

1.2.2 There are 335 ecological receptors included in the air quality model in the air quality study area. All receptors were modelled at a height of zero metres above ground to reflect a worst case situation of vegetation at ground level exposure. Details of the receptors assessed are presented in Table A-2.

Table A-2 Ecological Receptors Included in the Air Quality Dispersion Model

Transect /Receptor ID	Name	Transect Location	X	Y	Local Authority
European and nationally designated ecological site (SAC, SPA, SSSI)					
T1	South Pennine Moors SAC, Peak District Moors SPA, Dark Peak SSSI	R1_0m	410152	392851	High Peak
		R2_10m	410148	392841	High Peak
		R3_20m	410144	392832	High Peak
		R4_30m	410140	392823	High Peak
		R5_40m	410135	392814	High Peak
		R6_50m	410131	392805	High Peak
		R7_60m	410127	392796	High Peak
		R8_70m	410123	392787	High Peak
		R9_80m	410119	392778	High Peak
		R10_90m	410115	392769	High Peak
		R11_100m	410110	392760	High Peak
		R12_110m	410106	392750	High Peak
		R13_120m	410102	392741	High Peak
		R14_130m	410098	392732	High Peak
		R15_140m	410094	392723	High Peak
		R16_150m	410090	392714	High Peak
		R17_160m	410086	392705	High Peak
		R18_170m	410081	392696	High Peak
		R19_180m	410077	392687	High Peak
		R20_190m	410073	392678	High Peak
T2	South Pennine Moors SAC, Peak District Moors SPA, Dark Peak SSSI	R21_0m	410174	392848	High Peak
		R22_10m	410179	392857	High Peak
		R23_20m	410183	392867	High Peak
		R24_30m	410187	392876	High Peak
		R25_40m	410192	392885	High Peak
		R26_50m	410196	392894	High Peak
		R27_60m	410200	392903	High Peak

Transect /Receptor ID	Name	Transect Location	X	Y	Local Authority
		R28_70m	410204	392912	High Peak
		R29_80m	410209	392921	High Peak
		R30_90m	410213	392930	High Peak
		R31_100m	410217	392939	High Peak
		R32_110m	410221	392948	High Peak
		R33_120m	410226	392957	High Peak
		R34_130m	410230	392966	High Peak
		R35_140m	410234	392975	High Peak
		R36_150m	410239	392984	High Peak
		R37_160m	410243	392993	High Peak
		R38_170m	410247	393002	High Peak
		R39_180m	410251	393011	High Peak
		R40_190m	410256	393020	High Peak
T3	South Pennine Moors SAC, Peak District Moors SPA, Dark Peak SSSI	R41_0m	408984	392912	High Peak
		R42_10m	408984	392921	High Peak
		R43_20m	408984	392931	High Peak
		R44_30m	408984	392941	High Peak
		R45_40m	408984	392951	High Peak
		R46_50m	408984	392961	High Peak
		R47_60m	408984	392971	High Peak
		R48_70m	408984	392981	High Peak
		R49_80m	408984	392991	High Peak
		R50_90m	408984	393001	High Peak
		R51_100m	408984	393011	High Peak
		R52_110m	408984	393021	High Peak
		R53_120m	408984	393031	High Peak
		R54_130m	408984	393041	High Peak
		R55_140m	408984	393051	High Peak
		R56_150m	408984	393061	High Peak
		R57_160m	408984	393071	High Peak
R58_170m	408984	393081	High Peak		
R59_180m	408984	393091	High Peak		
R60_190m	408984	393101	High Peak		
T4		R61_0m	408985	392903	High Peak

Transect /Receptor ID	Name	Transect Location	X	Y	Local Authority
	South Pennine Moors SAC, Peak District Moors SPA, Dark Peak SSSI	R62_10m	408985	392893	High Peak
		R63_20m	408985	392883	High Peak
		R64_30m	408985	392873	High Peak
		R65_40m	408985	392863	High Peak
		R66_50m	408985	392853	High Peak
		R67_60m	408985	392843	High Peak
		R68_70m	408985	392833	High Peak
		R69_80m	408985	392823	High Peak
		R70_90m	408985	392813	High Peak
		R71_100m	408985	392803	High Peak
		R72_110m	408984	392793	High Peak
		R73_120m	408985	392783	High Peak
		R74_130m	408985	392773	High Peak
		R75_140m	408985	392763	High Peak
		R76_150m	408985	392753	High Peak
		R77_160m	408985	392743	High Peak
		R78_170m	408985	392733	High Peak
		R79_180m	408985	392724	High Peak
		R80_190m	408985	392714	High Peak
		T5	South Pennine Moors SAC, Peak District Moors SPA, Dark Peak SSSI	R81_38m	419909
R82_40m	419910			386420	High Peak
R83_50m	419913			386429	High Peak
R84_60m	419916			386439	High Peak
R85_70m	419919			386448	High Peak
R86_80m	419922			386458	High Peak
R87_90m	419925			386467	High Peak
R88_100m	419928			386477	High Peak
R89_110m	419931			386486	High Peak
R90_120m	419934			386496	High Peak
R91_130m	419938			386505	High Peak
R92_140m	419940			386515	High Peak
R93_150m	419944			386525	High Peak
R94_160m	419946			386534	High Peak
R95_170m	419950			386544	High Peak

Transect /Receptor ID	Name	Transect Location	X	Y	Local Authority
		R96_180m	419953	386553	High Peak
		R97_190m	419956	386563	High Peak
T6	South Pennine Moors SAC, Peak District Moors SPA, Dark Peak SSSI	R98_0m	407012	393057	High Peak
		R99_10m	407003	393059	High Peak
		R100_20m	406993	393062	High Peak
		R101_30m	406983	393065	High Peak
		R102_40m	406974	393067	High Peak
		R103_50m	406964	393070	High Peak
		R104_60m	406954	393073	High Peak
		R105_70m	406945	393075	High Peak
		R106_80m	406935	393078	High Peak
		R107_90m	406925	393081	High Peak
		R108_100m	406916	393083	High Peak
		R109_110m	406906	393086	High Peak
		R110_120m	406897	393089	High Peak
		R111_130m	406887	393091	High Peak
		R112_140m	406877	393094	High Peak
		R113_150m	406868	393097	High Peak
		R114_160m	406858	393099	High Peak
R115_170m	406848	393102	High Peak		
R116_180m	406839	393105	High Peak		
R117_190m	406829	393108	High Peak		
T7	South Pennine Moors SAC, Peak District Moors SPA, Dark Peak SSSI	R118_0m	409501	392888	High Peak
		R119_10m	409500	392898	High Peak
		R120_20m	409500	392908	High Peak
		R121_30m	409499	392918	High Peak
		R122_40m	409498	392928	High Peak
		R123_50m	409497	392938	High Peak
		R124_60m	409496	392948	High Peak
		R125_70m	409496	392958	High Peak
		R126_80m	409495	392968	High Peak
		R127_90m	409494	392978	High Peak
		R128_100m	409493	392988	High Peak
		R129_110m	409492	392997	High Peak

Transect /Receptor ID	Name	Transect Location	X	Y	Local Authority
		R130_120m	409492	393007	High Peak
		R131_130m	409491	393017	High Peak
		R132_140m	409490	393027	High Peak
		R133_150m	409489	393037	High Peak
		R134_160m	409488	393047	High Peak
		R135_170m	409488	393057	High Peak
		R136_180m	409487	393067	High Peak
		R137_190m	409486	393077	High Peak
T8	Rowlee Bridge SSSI	R139_102m	414665	389273	High Peak
		R140_112m	414662	389264	High Peak
		R141_122m	414658	389254	High Peak
		R142_132m	414654	389245	High Peak
		R143_142m	414651	389236	High Peak
		R144_152m	414647	389226	High Peak
		R145_162m	414644	389217	High Peak
		R146_172m	414640	389208	High Peak
		R147_182m	414637	389198	High Peak
		R148_192m	414633	389189	High Peak
R149_200m	414630	389181	High Peak		
E45	South Pennine Moors SAC, Peak District Moors SPA, Dark Peak SSSI	R150_0m	409456	392877	High Peak
E69	Huddersfield Narrow Canal SSSI	R312_0m	396685	398557	High Peak
Locally designated ecological site (Ancient Woodland, SBI, NIA, LWS, LNR)					
T9	Shire Hill Ancient Woodland	R151_0m	405182	394177	High Peak
		R152_1m	405181	394178	High Peak
		R153_2m	405181	394179	High Peak
		R154_3m	405181	394180	High Peak
		R155_4m	405181	394181	High Peak
		R156_5m	405181	394182	High Peak
		R157_6m	405181	394183	High Peak
		R158_7m	405181	394184	High Peak
		R159_8m	405181	394185	High Peak
		R160_9m	405181	394186	High Peak
		R161_10m	405181	394187	High Peak

Transect /Receptor ID	Name	Transect Location	X	Y	Local Authority
		R162_20m	405180	394197	High Peak
		R163_30m	405180	394206	High Peak
		R164_40m	405179	394216	High Peak
		R165_50m	405178	394226	High Peak
		R166_60m	405177	394236	High Peak
		R167_70m	405177	394246	High Peak
		R168_80m	405176	394256	High Peak
		R169_90m	405175	394266	High Peak
		R170_100m	405174	394276	High Peak
		R171_110m	405174	394286	High Peak
		R172_120m	405173	394296	High Peak
		R173_130m	405172	394305	High Peak
		R174_140m	405171	394315	High Peak
		R175_150m	405171	394325	High Peak
		R176_160m	405170	394335	High Peak
		R177_170m	405169	394345	High Peak
		R178_180m	405168	394355	High Peak
		R179_190m	405168	394365	High Peak
T10	Dark Peak NIA	R180_0m	416549	388017	High Peak
		R181_1m	416550	388017	High Peak
		R182_2m	416551	388017	High Peak
		R183_3m	416552	388017	High Peak
		R184_4m	416553	388017	High Peak
		R185_5m	416554	388016	High Peak
		R186_6m	416555	388016	High Peak
		R187_7m	416556	388016	High Peak
		R188_8m	416557	388016	High Peak
		R189_9m	416558	388016	High Peak
		R190_10m	416559	388016	High Peak
		R191_20m	416569	388015	High Peak
		R192_30m	416579	388014	High Peak
		R193_40m	416589	388013	High Peak
		R194_50m	416599	388012	High Peak
		R195_60m	416609	388010	High Peak

Transect /Receptor ID	Name	Transect Location	X	Y	Local Authority
		R196_70m	416619	388009	High Peak
		R197_80m	416629	388008	High Peak
		R198_90m	416639	388007	High Peak
		R199_100m	416648	388006	High Peak
		R200_110m	416658	388004	High Peak
		R201_120m	416668	388003	High Peak
		R202_130m	416678	388002	High Peak
		R203_140m	416688	388001	High Peak
		R204_150m	416698	388000	High Peak
		R205_160m	416708	387999	High Peak
		R206_170m	416718	387998	High Peak
		R207_180m	416728	387997	High Peak
		R208_190m	416738	387996	High Peak
		T11	Melandra Castle and Railway LWS	R209_17m	401395
R210_18m	401395			394914	High Peak
R211_19m	401394			394913	High Peak
R212_20m	401393			394912	High Peak
R213_21m	401393			394911	High Peak
R214_22m	401392			394911	High Peak
R215_23m	401391			394910	High Peak
R216_24m	401391			394909	High Peak
R217_25m	401390			394908	High Peak
R218_26m	401389			394908	High Peak
R219_27m	401389			394907	High Peak
R220_28m	401388			394906	High Peak
R221_29m	401387			394906	High Peak
R222_30m	401387			394905	High Peak
R223_40m	401380			394897	High Peak
R224_50m	401373			394890	High Peak
R225_60m	401366			394883	High Peak
R226_70m	401360	394875	High Peak		
R227_80m	401353	394868	High Peak		
R228_90m	401346	394860	High Peak		
R229_100m	401339	394853	High Peak		

Transect /Receptor ID	Name	Transect Location	X	Y	Local Authority
		R230_110m	401333	394846	High Peak
		R231_120m	401326	394838	High Peak
		R232_130m	401319	394831	High Peak
		R233_140m	401312	394824	High Peak
		R234_150m	401306	394816	High Peak
		R235_160m	401299	394809	High Peak
		R236_170m	401292	394801	High Peak
		R237_180m	401286	394794	High Peak
		R238_190m	401279	394787	High Peak
T12	Dark Peak NIA	R239_0m	416751	387293	High Peak
		R240_1m	416751	387294	High Peak
		R241_2m	416752	387295	High Peak
		R242_3m	416752	387295	High Peak
		R243_4m	416753	387296	High Peak
		R244_5m	416754	387297	High Peak
		R245_6m	416754	387298	High Peak
		R246_7m	416755	387299	High Peak
		R247_8m	416756	387299	High Peak
		R248_9m	416756	387300	High Peak
		R249_10m	416757	387301	High Peak
		R250_20m	416763	387309	High Peak
		R251_30m	416769	387317	High Peak
		R252_40m	416776	387324	High Peak
		R253_50m	416782	387332	High Peak
		R254_60m	416788	387340	High Peak
		R255_70m	416794	387348	High Peak
		R256_80m	416801	387356	High Peak
		R257_90m	416807	387363	High Peak
		R258_100m	416813	387371	High Peak
		R259_110m	416819	387379	High Peak
		R260_120m	416826	387387	High Peak
		R261_130m	416832	387395	High Peak
		R262_140m	416838	387402	High Peak
		R263_150m	416844	387410	High Peak

Transect /Receptor ID	Name	Transect Location	X	Y	Local Authority
		R264_160m	416851	387418	High Peak
		R265_170m	416857	387426	High Peak
		R266_180m	416863	387434	High Peak
		R267_190m	416869	387441	High Peak
E1	Dinting Vale Wood Ancient Woodland	R268_17m	401704	394553	High Peak
E2	Dinting Vale Wood Ancient Woodland	R269_10m	401627	394458	High Peak
E3	Dinting Vale Wood Ancient Woodland	R270_0m	401630	394450	High Peak
E4	Dinting Vale Wood Ancient Woodland	R271_0m	401633	394442	High Peak
E5	Dinting Vale Wood Ancient Woodland	R272_35m	401799	394479	High Peak
E6	Elmin Pits Farm Wood Ancient Woodland	R273_152m	416364	387771	High Peak
E7	Grimbocarandrough Woods Ancient Woodland	R274_10m	417394	387033	High Peak
E8	Grimbocarandrough Woods Ancient Woodland	R275_4m	418890	386497	High Peak
E9	Millbrook Bridge Wood Ancient Woodland	R276_10m	401080	396707	High Peak
E10	Millbrook Bridge Wood Ancient Woodland	R277_13m	401100	396580	High Peak
E11	Millbrook Bridge Wood Ancient Woodland	R278_80m	401147	396510	High Peak
E12	Reaves Stones Plantation Ancient Woodland	R279_180m	419568	386627	High Peak
E13	Unnamed Ancient Woodland (Eastwood & Acre Clough)	R280_134m	397560	396838	Tameside
E14	Unnamed Ancient Woodland (Eastwood & Acre Clough)	R281_126m	397581	396830	Tameside
E15	Unnamed Ancient Woodland (A57 Snake Road)	R282_153m	416260	388846	High Peak
E16	Robin Wood Ancient Woodland	R283_178m	400754	394135	High Peak
E17	Clough at Matley SBI	R284_159m	396973	396359	Tameside
E18	Unnamed Ancient Woodland (Clough at Matley), Clough at Matley SBI	R285_176m	397013	396370	Tameside
E19	Clough at Matley SBI	R286_156m	396935	396336	Tameside
E20	Dark Peak NIA	R287_10m	401447	397180	High Peak
E21	Dark Peak NIA	R288_0m	401454	397173	High Peak
E22	Dark Peak NIA	R289_0m	401453	397161	High Peak
E23	Eastwood & Acre Clough SBI	R290_96m	397567	396800	Tameside
E24	Eastwood & Acre Clough SBI	R291_53m	397638	396754	Tameside

Transect /Receptor ID	Name	Transect Location	X	Y	Local Authority
E25	Hurst Clough LNR	R292_115m	398740	394833	Tameside
E26	Roe Cross Quarry SBI	R293_151m	398789	396595	Tameside
E27	Westwood Clough Ancient Woodland, Westwood Clough & Longlands Hall SBI	R294_100m	397627	395490	Tameside
E28	Westwood Clough & Longlands Hall SBI	R295_18m	397184	395441	Tameside
E29	Westwood Clough & Longlands Hall SBI	R296_91m	397283	395335	Tameside
E30	Westwood Clough & Longlands Hall SBI	R297_32m	397594	395428	Tameside
E31	Westwood Clough Ancient Woodland, Westwood Clough & Longlands Hall SBI	R298_33m	397593	395428	Tameside
E32	Unnamed Ancient Woodland (Eastwood & Acre Clough)	R299_68.5m	397075	397906	Tameside
E33	Ponds at Denton Golf Course SBI	R300_35m	390963	395733	Tameside
E34	Audenshaw Reservoir SBI	R301_5.3m	390972	396085	Tameside
E35	Dunkirk Wood SBI	R302_67m	393950	395560	Tameside
E36	Peak Forest Canal (North) SBI	R303_0m	394249	395322	Tameside
E37	Westwood Clough & Longlands Hall SBI	R304_13m	397225	395433	Tameside
E38	Westwood Clough & Longlands Hall SBI	R305_33m	397596	395428	Tameside
E39	Unnamed Ancient Woodland (A57 Snake Road)	R306_181.5m	416588	388597	High Peak
E40	Grimbocarandrough Woods Ancient Woodland	R307_4m	418939	386499	High Peak
E41	Dark Peak NIA	R308_0m	412366	389716	High Peak
E42	Dark Peak NIA	R309_0m	416747	387289	High Peak
E43	Peak Forest Canal (North) SBI	R310_0m	394237	395368	Tameside
E44	Eastwood & Acre Clough SBI	R311_32.8m	397821	397049	Tameside
E45	Huddersfield Narrow Canal (South) SBI	R312_0m	396685	398557	Tameside
E46	Huddersfield Narrow Canal (South) SBI	R313_0m	396690	398564	Tameside
E47	Dinting Vale Reservoirs and Brook LWS	R314_2m	401786	394526	High Peak
E48	Shire Hill LWS	R315_43m	405031	394224	High Peak
E49	Dinting Wood LWS	R316_1.4m	401678	394456	High Peak
E50	Dinting Nature Reserve LWS	R317_2m	401686	394471	High Peak
E51	Dinting Junction Pond LWS	R318_5.6m	402209	394728	High Peak
E52	Gamesley Sidings LWS	R319_0m	400914	394041	High Peak

Transect /Receptor ID	Name	Transect Location	X	Y	Local Authority
E53	Gamesley Sidings LWS	R320_0m	400907	394040	High Peak
E54	Gamesley Sidings LWS	R321_47.8m	401860	394436	High Peak
E55	Gamesley Sidings LWS	R322_0m	399701	393713	High Peak
E56	Robin Wood LWS	R323_149.3m	400769	394106	High Peak
E57	Marple Road Meadows LWS	R324_2.3m	400480	392826	High Peak
E58	Dinting Lodge Grassland LWS	R325_3.6m	401946	394863	High Peak
E59	The Bank (potential LWS)	R326_153.3m	403744	393909	High Peak
E60	Ashes Farm Meadows (potential LWS)	R327_3.2m	402749	394585	High Peak
E61	Hurst Clough Ancient Woodland	R328_28.7m	398782	394043	Tameside
E62	Hurst Clough LNR, Hurst Clough SBI	R329_2m	398952	394648	Tameside
E63	Great Wood LNR	R330_112m	398756	393757	Tameside
E64	Reddish Vale SBI	R331_27.5m	391567	392932	Stockport
E65	Tom Wood LWS	R332_135m	399813	393477	High Peak
E66	Warrastfold Bridge Complex LWS	R333_129m	399265	393680	High Peak
E67	Crookilley Wood Ancient Woodland, Crookilley Wood SBI	R334_3.4m	391998	391732	Stockport
E68	Westwood Clough Ancient Woodland, Westwood Clough & Longlands Hall SBI	R335_126m	397660	395508	Tameside

Compliance Risk Receptors

- 1.2.3 As compliance risk receptors are set distances from roads and not specific named properties for the purposes of the 4m validation, a simple table of receptors is not provided here. Details of receptors used in the Compliance risk assessment for qualifying features are given in the table of results in Appendix 5.5 Section 1.3 (Table A-22).

1.3 Air Quality Model Methodology

Background Concentrations

- 1.3.1 Background concentrations have been derived from Defra's background maps (for 2018 from a 2018 reference year) and compared with monitored data at background sites away from major road sources for the wider area around the air quality study area for the Scheme, to ensure the mapped estimates are appropriate. The comparison is shown in Table A-3 for NO₂ and

1.3.2 Table A-4 for PM₁₀.

Table A-3: Comparison of Measured and Mapped Background NO₂ Concentrations (µg/m³)

Site Name	Operator	Site Location	Site Type	Grid Reference	Monitored Concentration 2018	Mapped Concentration 2018	% Difference
T 5	Tameside	Urban Background	DT	400507, 396518	13.9	11.0	-21%
T 9	Tameside	Urban Background	DT	393451, 394330	14.6	16.2	11%
T 22	Tameside	Urban Background	DT	393249, 399159	20.1	20.4	2%
T 23	Tameside	Urban Background	DT	393621, 398589	22.9	22.5	-2%
T 29	Tameside	Suburban	DT	393370, 399494	24.3	20.4	-16%
T 31	Tameside	Suburban	DT	396899, 402450	17.7	12.6	-29%
SK 1	Stockport	Urban Background	DT	389077, 392012	20	18.4	-8%
SK 4	Stockport	Rural	DT	396469, 390800	14.9	11.6	-22%
SK 5	Stockport	Rural	DT	396869, 382692	8.8	8.6	-2%
SK 6	Stockport	Urban Background	DT	385954, 388534	16.7	20.9	25%
SK 9	Stockport	Urban Background	DT	392743, 385681	12.7	12.8	1%
SK10	Stockport	Urban Background	DT	392781, 387271	14.5	14.0	-3%
SK13	Stockport	Urban Background	DT	384680, 386357	18.3	16.3	-11%
SK26	Stockport	Urban Background	DT	389406, 387338	15.3	15.3	0%
SK27	Stockport	Urban Background	DT	387088, 391387	16.8	17.5	4%
SK29	Stockport	Urban Background	DT	390088, 388545	18.5	18.1	-2%

Table A-4: Comparison of Measured and Mapped Background PM₁₀ Concentrations (µg/m³)

Site Name	Operator	Site Location	Site Type	Grid Reference	Monitored Concentration on 2018	Mapped Concentration on 2018	% Difference
Manchester Sharston	GMCA	Suburban	CMS	384179, 386086	14.2	11.0	-22.9%
Salford Eccles	GMCA	Industrial	CMS	377924, 398728	17.0	13.9	-18.3%
Trafford	GMCA	Urban Background	CMS	378783, 394726	14.0	12.4	-11.3%
Wigan Centre	GMCA	Urban Background	CMS	357816, 406024	17.0	12.1	-28.8%

Air Quality Model Verification

Verification for NO₂

1.3.3 Model verification was undertaken considering monitoring sites within 200 metres of the roads meeting the DMRB LA 105 traffic screening criteria. From the full network of NO₂ diffusion tubes available, only those representative of selected sensitive receptor locations and with sufficient data capture were considered suitable for the purpose of model verification.

1.3.4 Following detailed analysis of each monitoring location a total of 75 sites were taken forward in the model verification. The following hierarchies were used when making decisions on which survey data to select at locations where data from two or more surveys were available:

- Scheme specific TPU survey monitoring with data capture greater than 25% was used in preference to High Peak local authority 2018 survey data and to MMLR survey data (which was projected forward from 2015-2016) on the basis that this is the most recent survey data and the exact survey locations are known.
- High Peak local authority 2018 survey data was used in preference to MMLR survey data (which was projected forward from 2015-2016).
- MMLR survey data was used in preference to TPU survey data where the data capture for the TPU survey data was 25% or less.

1.3.5 Table A-5 details the sites removed from the verification process and the justification for removal.

Table A-5: Monitoring Sites Excluded from Model Verification

Site Name	Zone	Reason for exclusion
MMLR_047_1215	A57	Site adjacent to a road not included in the Scheme traffic model
MMLR_048_1215	A57	Local authority tube HP14 with 2018 data used in preference
MMLR_049_1215	A57	Local authority tube HP26 with 2018 data used in preference
MMLR_036_1215	A57	Monitoring site roadside to a road not included in modelled network
MMLR_052_1215	A57	Monitoring site roadside to a road not included in modelled network
MMLR_067_1215	A57	Monitoring site roadside to a road not included in modelled network
TPU_28	A57	Less than 3 months of monitoring data
TPU_29	A57	Only three months of data at the time of the assessment and difference in monitored concentrations compared to adjacent sites
TPU_30	A57	Less than 3 months of monitoring data
HP25	Dinting Vale Junction	TPU17 used in preference as exact survey location known
MMLR_027_1215	Dinting Vale Junction	TPU1 used in preference as more recent data
TPU_32	Mottram - N A57	Only 3 months of monitoring data at the time of the assessment - MMLR_054 used in preference
TPU_34	Mottram - N A57	Only 3 months of monitoring data at the time of the assessment - MMLR_064 used in preference
TPU_35	Mottram - N A57	Only 3 months of monitoring data at the time of the assessment - MMLR_013 used in preference
MMLR_025_1215	Mottram - S A57	Kerbside monitor, not representative of receptors
MMLR_069ABC_1215	Mottram - S A57	Co-located with TAM1 CMS
T 45	Mottram - S A57	Co-located with TAM1 CMS
T 46	Mottram - S A57	Co-located with TAM1 CMS
T47	Mottram - S A57	Co-located with TAM1 CMS
TPU_31	Mottram - S A57	Only 3 months of monitoring data at the time of the assessment - MMLR_025 used in preference
TPU_37	Mottram-S A57	Monitoring at this site not undertaken in relevant year
MMLR_020_1215	Mottram Rise	Kerbside monitor at junction, not representative of receptors
MMLR_056_1215	Mottram Rise	Background site
TPU_39	Non A Road / Suburban	Less than 3 months of monitoring data

- 1.3.6 The annual mean NO₂ concentrations for the 2018 base year were verified by means of comparison against available ratified monitoring data. The modelled road NO_x concentrations were adjusted where appropriate, with reference to the methodology set out in Defra's LAQM.TG(16).
- 1.3.7 Uncertainty in modelled estimates has been considered by calculating root mean square error (RMSE) and fractional bias statistics. An air quality model can be considered to perform reasonably well where 95% of modelled concentrations are within 25% of monitored concentrations in accordance with Defra's Technical Guidance LAQM.TG(16). The RMSE should ideally be within 10% of the relevant air quality criterion (less than 4 µg/m³) but is acceptable where it is within 25% of the relevant air quality criterion (i.e. 10 µg/m³). The Fractional Bias (FB) has an ideal value of 0 but is acceptable in the range between +2 and -2.
- 1.3.8 First, unadjusted modelled estimates of total annual mean NO₂ concentrations have been compared against monitored annual means. Out of 75 comparisons, 29 modelled estimates are within +/- 25% of monitored without adjustment, as given in Table A-6. Substantial and systematic underestimates of more than 25% are indicated for 45 sites, with 1 site overestimating by more than 25%. Eight of the comparisons are within +/- 10% of monitored concentrations.

Table A-6: Comparison of Unadjusted Modelled and Measured NO₂ Concentrations (µg/m³)

Site ID	Modelled NO ₂	Measured NO ₂	Modelled - Measured	Modelled / Measured	% Difference
HP1	15.5	22.9	-7.4	0.7	-32%
TPU_42	18.1	27.4	-9.3	0.7	-34%
HP24	17.5	29.8	-12.4	0.6	-41%
HP14	17.4	24.1	-6.8	0.7	-28%
MMLR_050_1215	22.5	32.6	-10.1	0.7	-31%
HP26	21.1	34.5	-13.4	0.6	-39%
MMLR_051_1215	23.7	39.6	-15.9	0.6	-40%
MMLR_026_1215	24.3	42.0	-17.7	0.6	-42%
T 21	23.1	50.9	-27.8	0.5	-55%
HP27	18.7	32.7	-14.0	0.6	-43%
TPU1	20.6	43.0	-22.4	0.5	-52%
TPU16	18.1	35.5	-17.4	0.5	-49%
TPU17	19.3	43.5	-24.2	0.4	-56%
TPU20	20.3	41.4	-21.0	0.5	-51%
M60J24J27_017_0813	30.1	25.6	4.4	1.2	17%
M60J24J27_018_0813	28.4	31.7	-3.3	0.9	-10%
M60J24J27_019_0813	29.5	22.2	7.3	1.3	33%
T 3	29.4	28.0	1.4	1.0	5%
MMLR_006_1215	20.0	25.3	-5.3	0.8	-21%

Site ID	Modelled NO ₂	Measured NO ₂	Modelled - Measured	Modelled / Measured	% Difference
MMLR_011_1215	16.5	22.9	-6.4	0.7	-28%
T 20	27.1	40.1	-13.0	0.7	-32%
T 18	33.7	41.6	-7.9	0.8	-19%
T 48	28.5	30.3	-1.9	0.9	-6%
MMLR_001_1215	26.7	25.4	1.2	1.0	5%
MMLR_002_1215	20.9	21.3	-0.4	1.0	-2%
MMLR_003_1215	21.2	20.3	0.9	1.0	5%
MMLR_007_1215	22.8	25.8	-3.0	0.9	-12%
MMLR_008_1215	19.4	22.1	-2.8	0.9	-12%
MMLR_009_1215	17.9	20.6	-2.7	0.9	-13%
MMLR_010_1215	17.1	23.6	-6.5	0.7	-28%
M60J24J27_016_0813	35.1	37.8	-2.7	0.9	-7%
MMLR_063_1215	16.2	17.6	-1.4	0.9	-8%
MMLR_012_1215	34.5	40.8	-6.3	0.8	-16%
MMLR_016_1215	26.3	35.9	-9.6	0.7	-27%
MMLR_019_1215	27.8	35.3	-7.5	0.8	-21%
MMLR_024_1215	27.2	41.9	-14.7	0.6	-35%
MMLR_054_1215	28.3	39.7	-11.4	0.7	-29%
MMLR_057_1215	29.3	37.3	-8.0	0.8	-21%
MMLR_073	28.6	54.6	-26.0	0.5	-48%
MMLR_074	25.7	51.1	-25.3	0.5	-50%
MMLR_013_1215	35.5	50.7	-15.2	0.7	-30%
MMLR_064_1215	30.0	65.2	-35.1	0.5	-54%
TAM1	18.9	43.0	-24.2	0.4	-56%
MMLR_014_1215	30.9	74.2	-43.3	0.4	-58%
MMLR_015_1215	24.1	60.1	-36.1	0.4	-60%
MMLR_071	18.7	37.7	-19.0	0.5	-50%
MMLR_072	18.7	37.9	-19.2	0.5	-51%
MMLR_075	21.5	56.6	-35.1	0.4	-62%
T 11	24.6	56.7	-32.1	0.4	-57%
MMLR_018_1215	19.3	22.8	-3.4	0.8	-15%
MMLR_065_1215	21.5	25.7	-4.2	0.8	-16%
MMLR_017_1215	18.3	24.6	-6.4	0.7	-26%
TPU_33	17.3	23.9	-6.6	0.7	-28%
MMLR_022_1215	17.9	28.0	-10.1	0.6	-36%

Site ID	Modelled NO ₂	Measured NO ₂	Modelled - Measured	Modelled / Measured	% Difference
MMLR_021_1215	18.6	33.0	-14.4	0.6	-44%
T 19	23.1	36.0	-12.9	0.6	-36%
MMLR_045_1215	15.0	16.2	-1.3	0.9	-8%
TPU_38	14.9	18.1	-3.2	0.8	-18%
TPU_36	20.3	24.7	-4.4	0.8	-18%
T 2	20.3	23.7	-3.4	0.9	-14%
MMLR_046_1215	16.4	25.6	-9.2	0.6	-36%
M60J24J27_021_0813	34.3	41.1	-6.8	0.8	-16%
M60J24J27_022_0813	37.3	42.8	-5.5	0.9	-13%
M60J24J27_023_0813	25.7	30.4	-4.7	0.8	-15%
MMLR_031_1215	24.3	36.8	-12.5	0.7	-34%
HP20	17.4	28.4	-11.0	0.6	-39%
HP30	24.5	28.3	-3.8	0.9	-13%
HP31	20.9	37.8	-17.0	0.6	-45%
MMLR_029_1215	26.3	45.8	-19.5	0.6	-43%
MMLR_030_1215	19.2	26.8	-7.6	0.7	-28%
MMLR_032_1215	20.6	33.6	-12.9	0.6	-39%
MMLR_062_1215	24.0	29.8	-5.8	0.8	-19%
MMLR_068_1215	14.5	19.4	-4.8	0.8	-25%
MMLR_044_1215	23.7	40.0	-16.3	0.6	-41%
HP29	21.0	30.7	-9.7	0.7	-32%

- 1.3.9 For unadjusted modelled estimates of NO₂ compared to monitored concentrations, the RMSE is 15.1 µg/m³, which is above the target value according to Defra's LAQM.TG(16) (ideal less than 4 µg/m³, acceptable less than 10 µg/m³). Overall, the unadjusted model tends to underestimate total concentrations of NO₂, as indicated by a high fractional bias value of 0.39.
- 1.3.10 The second comparison of modelled estimates of road contributed annual mean NO_x with the road NO_x component derived from monitoring data is presented in

- 1.3.11 Table A-7 and
- 1.3.12 Insert A-2. This analysis requires the estimation of the monitored road NO_x component. This has been undertaken using Defra's NO₂ to NO_x calculator (version 8.1, August 2020).
- 1.3.13 Modelled road NO_x concentrations can be adjusted by taking the slope of the linear regression line that has been forced through zero (as shown in
- 1.3.14 Insert A-2). Due to the model performing differently in different areas, the verification was spilt into 9 zones (as described in

1.3.15 Table A-7), resulting in 9 different adjustment factors for the full study area (75 sites).

Table A-7: Comparison of Unadjusted Modelled and Measured NOx Concentrations ($\mu\text{g}/\text{m}^3$)

Site ID	Zone	Modelled Road NOx	Measured Road NOx	Modelled - Measured	Measured / Modelled	% Difference
HP1	A57	9.4	23.6	-14.2	2.5	-60%
TPU_42	A57	15.6	34.1	-18.5	2.2	-54%
HP24	A57	13	37.7	-24.7	2.9	-66%
HP14	A57	11.3	24.4	-13.1	2.2	-54%
MMLR_050_1215	A57	23.6	44.4	-20.8	1.9	-47%
HP26	A57	18.4	46.2	-27.8	2.5	-60%
MMLR_051_1215	A57	25.9	60.3	-34.4	2.3	-57%
MMLR_026_1215	A57	27.2	66	-38.8	2.4	-59%
T 21	A57	24.7	88	-63.3	3.6	-72%
HP27	A57	13.9	42.3	-28.4	3	-67%
TPU1	Dinting Vale Junction	20.4	68.9	-48.5	3.4	-70%
TPU16	Dinting Vale Junction	15.5	51.5	-36	3.3	-70%
TPU17	Dinting Vale Junction	17.9	70	-52.1	3.9	-74%
TPU20	Dinting Vale Junction	19.9	65	-45.1	3.3	-69%
M60J24J27_017_0813	M60	26.4	17.4	9	0.7	52%
M60J24J27_018_0813	M60	23.1	30	-6.9	1.3	-23%
M60J24J27_019_0813	M60	23	8.4	14.6	0.4	174%
T 3	M60	22.7	19.9	2.8	0.9	14%
MMLR_006_1215	M67	7.8	18.2	-10.4	2.3	-57%
MMLR_011_1215	M67	9.5	21.8	-12.3	2.3	-56%
T 20	M67	19.5	47.6	-28.1	2.4	-59%
T 18	M67	31.7	49.3	-17.6	1.6	-36%
T 48	M67	19.5	23.3	-3.8	1.2	-16%
MMLR_001_1215	M67	18.7	16.2	2.5	0.9	15%
MMLR_002_1215	M67	9.5	10.3	-0.8	1.1	-8%

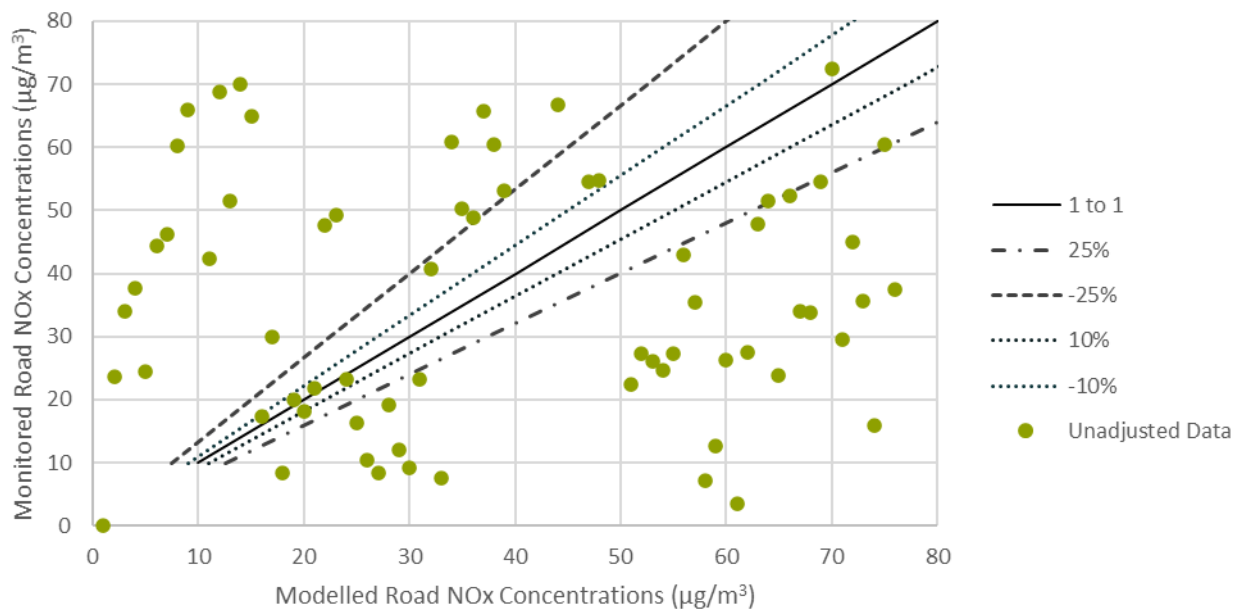
Site ID	Zone	Modelled Road NOx	Measured Road NOx	Modelled - Measured	Measured / Modelled	% Difference
MMLR_003_1215	M67	10.2	8.4	1.8	0.8	21%
MMLR_007_1215	M67	13.2	19.2	-6	1.5	-31%
MMLR_008_1215	M67	6.7	12	-5.3	1.8	-44%
MMLR_009_1215	M67	3.9	9.1	-5.2	2.3	-57%
MMLR_010_1215	M67	10.5	23.2	-12.7	2.2	-55%
M60J24J27_016_0813	M67	34.9	40.8	-5.9	1.2	-14%
MMLR_063_1215	M67	4.9	7.5	-2.6	1.5	-35%
MMLR_012_1215	Mottram - N A57	46.3	60.8	-14.5	1.3	-24%
MMLR_016_1215	Mottram - N A57	29.6	50.3	-20.7	1.7	-41%
MMLR_019_1215	Mottram - N A57	32.6	48.9	-16.3	1.5	-33%
MMLR_024_1215	Mottram - N A57	33	65.7	-32.7	2	-50%
MMLR_054_1215	Mottram - N A57	35.4	60.5	-25.1	1.7	-41%
MMLR_057_1215	Mottram - N A57	35.8	53.2	-17.4	1.5	-33%
MMLR_073	Mottram - N A57	34.3	96.1	-61.8	2.8	-64%
MMLR_074	Mottram - N A57	28.4	86.7	-58.3	3.1	-67%
MMLR_013_1215	Mottram - N A57	49.3	86.1	-36.8	1.7	-43%
MMLR_064_1215	Mottram - S A57	37.4	125.7	-88.3	3.4	-70%
TAM1	Mottram - S A57	14.7	66.7	-52	4.5	-78%
MMLR_014_1215	Mottram - S A57	39.3	152.4	-113.1	3.9	-74%
MMLR_015_1215	Mottram - S A57	25	111.5	-86.5	4.5	-78%
MMLR_071	Mottram - S A57	14.5	54.5	-40	3.8	-73%

Site ID	Zone	Modelled Road NOx	Measured Road NOx	Modelled - Measured	Measured / Modelled	% Difference
MMLR_072	Mottram - S A57	14.3	54.9	-40.6	3.8	-74%
MMLR_075	Mottram - S A57	19.8	101.3	-81.5	5.1	-80%
T 11	Mottram - S A57	27	102.7	-75.7	3.8	-74%
MMLR_018_1215	Mottram Rise	15.6	22.4	-6.8	1.4	-30%
MMLR_065_1215	Mottram Rise	18.8	27.3	-8.5	1.5	-31%
MMLR_017_1215	Mottram Rise	13.6	26.1	-12.5	1.9	-48%
TPU_33	Mottram Rise	11.7	24.6	-12.9	2.1	-52%
MMLR_022_1215	Mottram Rise	7.4	27.3	-19.9	3.7	-73%
MMLR_021_1215	Mottram Rise	13.3	43	-29.7	3.2	-69%
T 19	Non A Road / Suburban	8.9	35.4	-26.5	4	-75%
MMLR_045_1215	Non A Road / Suburban	4.8	7.1	-2.3	1.5	-32%
TPU_38	Non A Road / Suburban	6.7	12.7	-6	1.9	-47%
TPU_36	Non A Road / Suburban	17.5	26.3	-8.8	1.5	-33%
T 2	Non A Road / Suburban	6.9	3.5	3.4	0.5	97%
MMLR_046_1215	Non A Road / Suburban	9.5	27.4	-17.9	2.9	-65%
M60J24J27_021_0813	Non A Road / Suburban	32.7	47.8	-15.1	1.5	-32%
M60J24J27_022_0813	Non A Road / Suburban	39.2	51.6	-12.4	1.3	-24%
M60J24J27_023_0813	Non A Road / Suburban	14.4	23.9	-9.5	1.7	-40%
MMLR_031_1215	A628	25.8	52.2	-26.4	2	-51%
HP20	A628	12.2	34.1	-21.9	2.8	-64%
HP30	A628	26.1	33.9	-7.8	1.3	-23%
HP31	A628	18.9	54.5	-35.6	2.9	-65%
MMLR_029_1215	A628	28.6	72.4	-43.8	2.5	-60%
MMLR_030_1215	A628	14.4	29.5	-15.1	2	-51%

Site ID	Zone	Modelled Road NOx	Measured Road NOx	Modelled - Measured	Measured / Modelled	% Difference
MMLR_032_1215	A628	18.4	45.1	-26.7	2.5	-59%
MMLR_062_1215	A628	23.7	35.6	-11.9	1.5	-33%
MMLR_068_1215	A628	6.9	16	-9.1	2.3	-57%
MMLR_044_1215	A628	25.3	60.6	-35.3	2.4	-58%
HP29	A628	17.8	37.5	-19.7	2.1	-53%

Insert A-2: Comparison of Modelled and Measured Road NOx Concentrations ($\mu\text{g}/\text{m}^3$) before Adjustment

Comparison of Modelled Road NOx and Monitored Road NOx Concentrations ($\mu\text{g}/\text{m}^3$) before Adjustment



1.3.16 The model was split into 9 verification zones. The factors used to adjust the model results in these areas are shown below in Table A-8.

Table A-8: Model Verification Adjustment Factors

Zone	Zone Name	Number of Monitoring Sites	Adjustment Factor
1	A57	10	2.55
2	A628	11	2.12
3	Dinting Vale Junction	4	3.46
4	M67	14	1.45
5	Mottram North of A57	9	1.82
6	Mottram South of A57	8	3.91
7	Mottram Rise	6	1.98
8	Non-A road / Suburban	9	1.50
9*	M60	4	0.79 (1.00)
* An adjustment factor of 1.00 was applied to the M60 zone as a worst case			

1.3.17 The third comparison of the adjusted modelled estimates of total annual mean NO₂ with monitored concentrations is presented in Table A-9 and

- 1.3.18 Insert A-3. 95% of comparisons are within +/- 25% - that is 71 of 75 modelled concentrations within +/- 25% of the monitored values at the same site. The majority (45 of 75 sites) are within 10% of monitored concentrations. Substantial differences of more than 25% is indicated for just four sites (shown in bold in Table A-9). Overall, this suggests that the model is performing well at most locations in accordance with Defra Technical Guidance LAQM.TG(16).
- 1.3.19 The RMSE for the adjusted modelled NO₂ concentrations compared to monitored concentrations is 4.81 µg/m³. Adjustment has therefore improved model performance. Overall, the adjusted model has tended to very slightly underestimate total concentrations of NO₂, as indicated by a fractional bias value of 0.02.

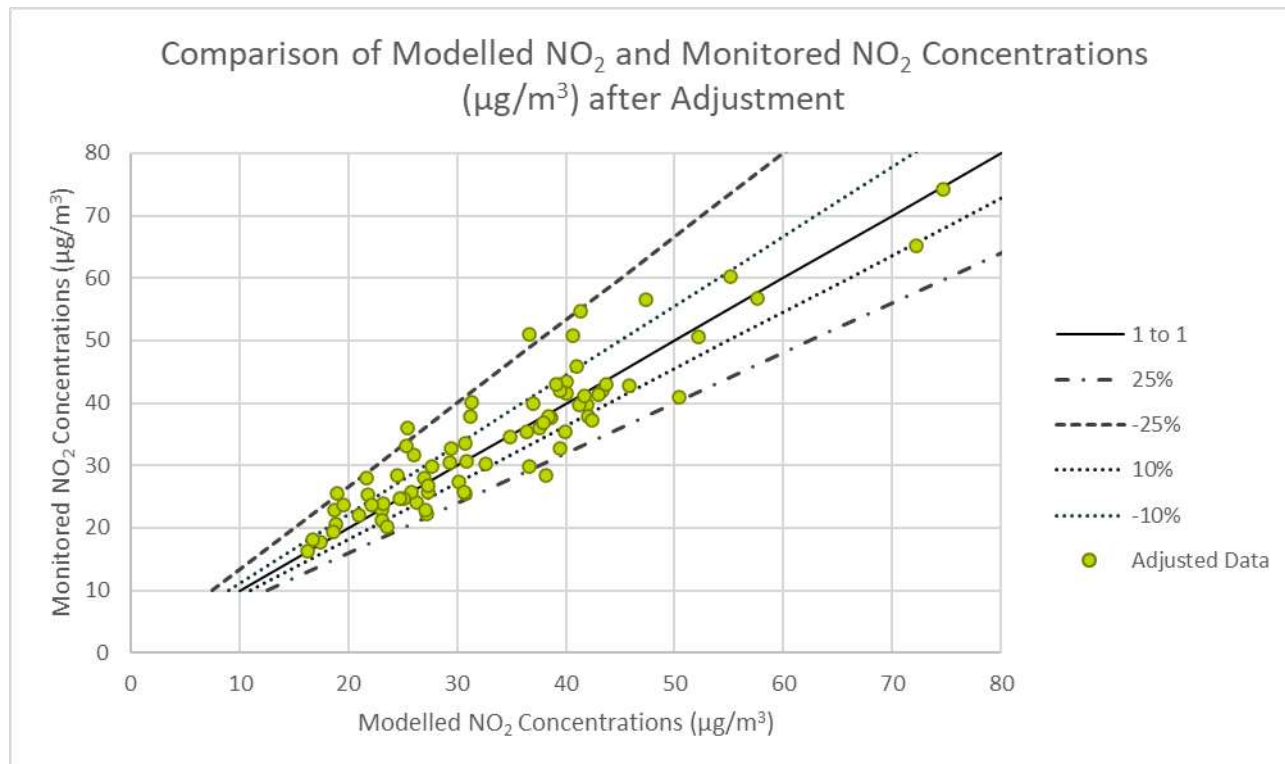
Table A-9: Comparison of Adjusted Modelled and Measured NO₂ Concentrations (µg/m³)

Site ID	Modelled NO ₂	Measured NO ₂	Modelled - Measured	Modelled / Measured	% Difference
HP1	23.1	22.9	0.2	1.0	0.9%
TPU_42	30.2	27.4	2.8	1.1	10.2%
HP24	27.6	29.8	-2.2	0.9	-7.4%
HP14	26.3	24.1	2.2	1.1	9.1%
MMLR_050_1215	39.4	32.6	6.8	1.2	20.9%
HP26	34.9	34.5	0.4	1.0	1.2%
MMLR_051_1215	41.9	39.6	2.3	1.1	5.8%
MMLR_026_1215	43.3	42	1.3	1.0	3.1%
T 21	40.6	50.9	-10.3	0.8	-20.2%
HP27	29.4	32.7	-3.3	0.9	-10.1%
TPU1	43.7	43	0.7	1.0	1.6%
TPU16	36.5	35.5	1	1.0	2.8%
TPU17	40.1	43.5	-3.4	0.9	-7.8%
TPU20	43	41.4	1.6	1.0	3.9%
M60J24J27_017_0813	27.3	25.6	1.7	1.1	6.6%
M60J24J27_018_0813	26	31.7	-5.7	0.8	-18.0%
M60J24J27_019_0813	27.2	22.2	5	1.2	22.5%
T 3	27	28	-1	1.0	-3.6%
MMLR_006_1215	21.8	25.3	-3.5	0.9	-13.8%
MMLR_011_1215	18.8	22.9	-4.1	0.8	-17.9%
T 20	31.3	40.1	-8.8	0.8	-21.9%
T 18	40.1	41.6	-1.5	1.0	-3.6%
T 48	32.7	30.3	2.4	1.1	7.9%
MMLR_001_1215	30.8	25.4	5.4	1.2	21.3%

Site ID	Modelled NO ₂	Measured NO ₂	Modelled - Measured	Modelled / Measured	% Difference
MMLR_002_1215	23	21.3	1.7	1.1	8.0%
MMLR_003_1215	23.5	20.3	3.2	1.2	15.8%
MMLR_007_1215	25.8	25.8	0	1.0	0.0%
MMLR_008_1215	20.9	22.1	-1.2	0.9	-5.4%
MMLR_009_1215	18.8	20.6	-1.8	0.9	-8.7%
MMLR_010_1215	19.5	23.6	-4.1	0.8	-17.4%
M60J24J27_016_0813	42.1	37.8	4.3	1.1	11.4%
MMLR_063_1215	17.4	17.6	-0.2	1.0	-1.1%
MMLR_012_1215	50.4	40.8	9.6	1.2	23.5%
MMLR_016_1215	37.5	35.9	1.6	1.0	4.5%
MMLR_019_1215	40	35.3	4.7	1.1	13.3%
MMLR_024_1215	39.5	41.9	-2.4	0.9	-5.7%
MMLR_054_1215	41.3	39.7	1.6	1.0	4.0%
MMLR_057_1215	42.4	37.3	5.1	1.1	13.7%
MMLR_073	41.3	54.6	-13.3	0.8	-24.4%
MMLR_074	36.6	51.1	-14.5	0.7	-28.4%
MMLR_013_1215	52.2	50.7	1.5	1.0	3.0%
MMLR_064_1215	72.2	65.2	7	1.1	10.7%
TAM1	39.1	43	-3.9	0.9	-9.1%
MMLR_014_1215	74.7	74.2	0.5	1.0	0.7%
MMLR_015_1215	55.1	60.1	-5	0.9	-8.3%
MMLR_071	38.7	37.7	1	1.0	2.7%
MMLR_072	38.4	37.9	0.5	1.0	1.3%
MMLR_075	47.3	56.6	-9.3	0.8	-16.4%
T 11	57.7	56.7	1	1.0	1.8%
MMLR_018_1215	27.1	22.8	4.3	1.2	18.9%
MMLR_065_1215	30.6	25.7	4.9	1.2	19.1%
MMLR_017_1215	25.1	24.6	0.5	1.0	2.0%
TPU_33	23.2	23.9	-0.7	1.0	-2.9%
MMLR_022_1215	21.7	28	-6.3	0.8	-22.5%
MMLR_021_1215	25.3	33	-7.7	0.8	-23.3%
T 19	25.4	36	-10.6	0.7	-29.4%
MMLR_045_1215	16.2	16.2	0	1.0	0.0%
TPU_38	16.7	18.1	-1.4	0.9	-7.7%

Site ID	Modelled NO ₂	Measured NO ₂	Modelled - Measured	Modelled / Measured	% Difference
TPU_36	24.7	24.7	0	1.0	0.0%
T 2	22.1	23.7	-1.6	0.9	-6.8%
MMLR_046_1215	18.9	25.6	-6.7	0.7	-26.2%
M60J24J27_021_0813	41.7	41.1	0.6	1.0	1.5%
M60J24J27_022_0813	45.8	42.8	3	1.1	7.0%
M60J24J27_023_0813	29.3	30.4	-1.1	1.0	-3.6%
MMLR_031_1215	37.9	36.8	1.1	1.0	3.0%
HP20	24.5	28.4	-3.9	0.9	-13.7%
HP30	38.2	28.3	9.9	1.3	35.0%
HP31	31.3	37.8	-6.5	0.8	-17.2%
MMLR_029_1215	40.9	45.8	-4.9	0.9	-10.7%
MMLR_030_1215	27.4	26.8	0.6	1.0	2.2%
MMLR_032_1215	30.8	33.6	-2.8	0.9	-8.3%
MMLR_062_1215	36.6	29.8	6.8	1.2	22.8%
MMLR_068_1215	18.6	19.4	-0.8	1.0	-4.1%
MMLR_044_1215	37	40	-3	0.9	-7.5%
HP29	30.9	30.7	0.2	1.0	0.7%

Insert A-3: Comparison of Modelled and Measured NO₂ Concentrations (µg/m³) after Adjustment



Verification for PM₁₀

1.3.20 To assess the base year, verification was undertaken for PM₁₀ at the TAM1 continuous monitoring site. A comparison of modelled and monitored PM₁₀ concentrations for 2018 are shown in Table A-10. The modelled road PM₁₀ concentrations were adjusted by a factor of 1.66, with reference to the methodology set out in Defra’s LAQM.TG(16).

Table A-10: Comparison of Modelled and Monitored PM₁₀ Concentrations (µg/m³)

Site ID	Modelled Road PM ₁₀	Background PM ₁₀	Total Modelled PM ₁₀	Measured PM ₁₀	Modelled - Measured	Modelled / Measured	% Difference	Measured / Modelled
TAM1	1.0	10.4	11.4	19.0	-7.6	0.6	-40%	1.66

1.4 Trend Analysis

1.4.1 Analysis of trends in annual mean NO₂ has been undertaken using the Finnish Meteorological Institute MAKESENS (v1) spreadsheet using the annual mean time series data for the roadside CMS within the air quality study area for the Scheme (TAM1, operated by TMBC) and seven background CMS sites operated by the local authorities in proximity of the air quality study area. The analysis examines the trend in the annual mean concentrations at CMS where a sufficient number of annual mean data points are available.

1.4.2 The statistical analysis undertaken includes a Sen’s slope estimate of the linear trend, residual concentrations which indicate the variation year on year and the Mann-Kendall test statistic (S) to indicate the significance of any trend. In order to conduct a Mann-Kendall test, five or more series of data must be presented for each site. Table A-11 summarises the statistical analysis for each CMS.

Table A-11: Summary of Annual Mean NO₂ Trend Analysis at CMS

Site ID	Site Type	Local Authority	Number of Data Points	Required S Value	S Value	Sen's Slope	Significant (Y/N)*
GLAZ	Rural Background	Salford	8	+/-16	-8	-0.3	N
MAN3	Urban Background	Manchester	8	+/-16	-17	-0.8	Y (0.1)
MAN8	Suburban Background	Manchester	4	+/-6	-5	-1.2	N
TAME	Urban Background	Tameside	5	+/-8	-1	-0.1	N
Trafford	Urban Background	Trafford	8	+/-16	-20	-1.0	Y (0.05)
WIG5	Urban Background	Wigan	8	+/-16	-19	-1.0	Y (0.05)
CM3 - Gawber	Urban Background	Barnsley	8	+/-16	-18	-0.8	Y (0.05)
TAM1	Roadside	Tameside	6	+/-11	-12	-1.8	Y (0.1)

* The value in brackets indicates the level of statistical significance

1.4.3 The statistical analysis indicates four of the seven background CMS sites for which the requisite series of data are available show statistically significant downward trends in annual mean NO₂ concentration. In addition the roadside CMS also shown a show statistically significant downward trend in annual mean NO₂ concentration.

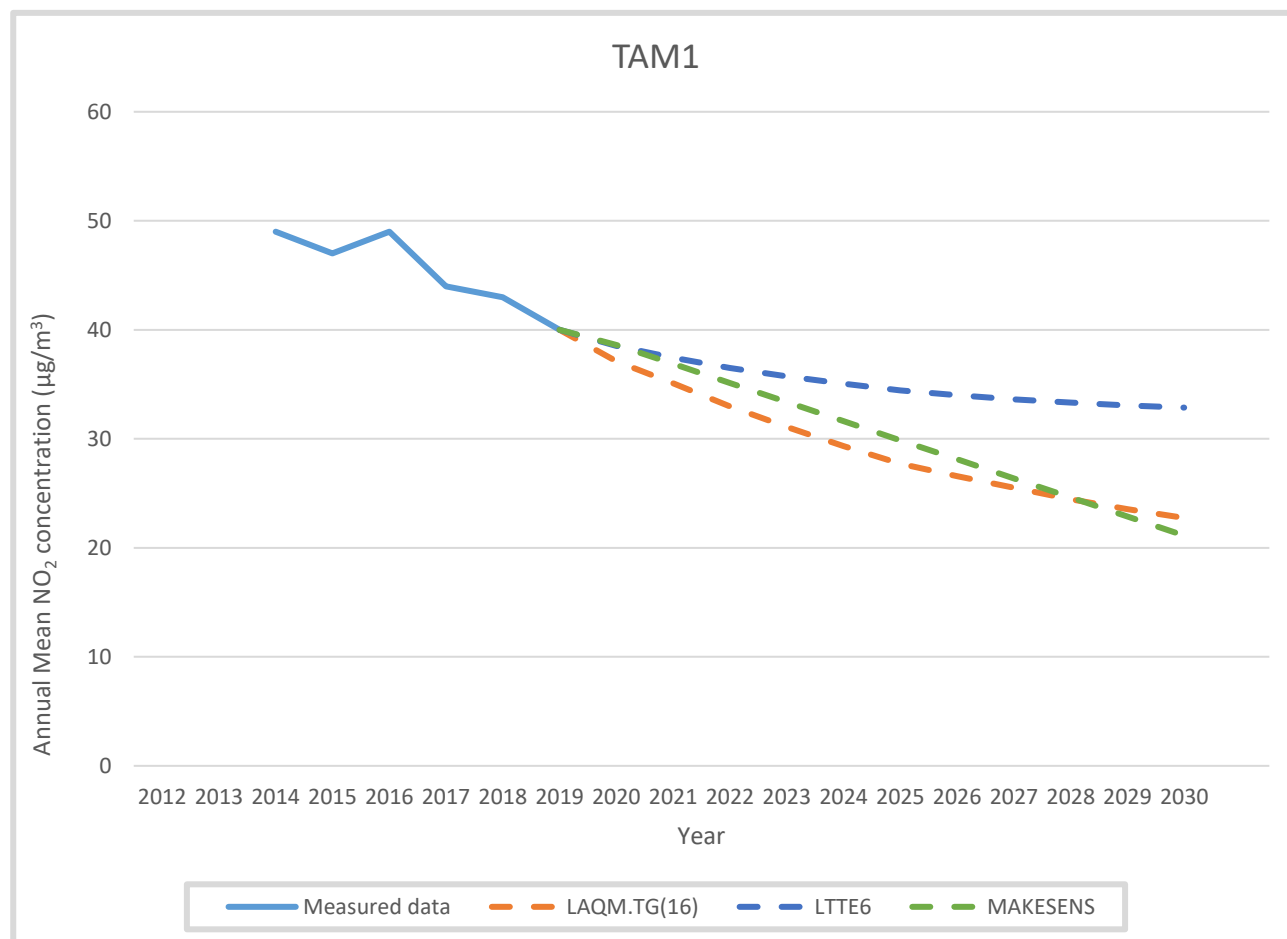
1.4.4 Where there is a statistically significant trend the following projection methods can be compared to determine the suitability of the projection method used for the air quality modelling:

- The trend determined from the MAKESENS analysis reported above, where a statistically significant trend was identified.
- The trend assumed in LAQM.TG(16) Defra guidance updated in 2018 (separate trends for roadside and background locations).
- The trend assumed in Highways England LTTE6 Projection Factors for Annual Mean NO₂ and NO_x concentrations.

1.4.5 Analysis (Insert A-4) shows that the Defra LAQM.TG(16) projections for roadside sites, are the most optimistic and the DMRB LA 105 LTTE6 projections the most conservative.

1.4.6 For the roadside CMS within the air quality study area for the Scheme the MAKESENS analysis of the monitoring data is similar to Defra LAQM.TG(16) projections and less conservative than the LTTE6 factors. However the DMRB LA 105 LTTE6 gap factors have been selected for use in the air quality assessment to ensure that the assessment is not overly optimistic, which would have been the case if Defra.TG(16) projections were used.

Insert A-4: Annual Mean NO₂ Future Year Roadside Concentration Projections for TAM1



1.5 Designated Habitats Assessment

Background Deposition Rates

1.5.1 Details of designation types, habitat types, lower level of critical loads and background deposition rates used for designated ecological sites included in the air quality assessment are shown in

- 1.5.2 Table A-12 for European and National statutory designated sites and in Table A-13 for local non statutory designations.

Table A-12: Background Nitrogen Deposition Rates, Habitat Type and Critical Loads for Nitrogen Sensitive Designated Sites – European and National Statutory Designations

Site Name	Designation	Species / Habitat Type	Lower Limit of Critical Load (Kg N/ha/yr)	APIS 2016-18 background N-dep rate (max) (kg N/ha/yr)
South Pennine Moors	SAC	Blanket bogs (grassland)	5	32.5
South Pennine Moors	SAC	Acidophilous Quercus-dominated woodland	10	50.6
Peak District Moor	SPA	Pluvialis apricaria [North-western Europe] - European golden plover (A140) - Montane habitats (grassland)	5	31.9
Dark Peak	SSSI	Bogs (Calluna vulgaris - Eriophorum vaginatum blanket mire) (grassland)	5	31.9
Dark Peak	SSSI	Broad-leaved, mixed and yew woodland (Quercus spp.-Betula spp.-Deschampsia flexuosa woodland)	10	45.6

Table A-13: Background Nitrogen Deposition Rates, Habitat Type and Critical Loads for Nitrogen Sensitive Designated Sites – Local Non Statutory Designations

Site Name	Designation	Habitat Type	Lower Limit of Critical Load (Kg N/ha/yr)	APIS 2016-18 background N-dep rate (max) (kg N/ha/yr)
Shire Hill	Ancient Woodland	Broadleaved, Mixed and Yew Woodland	10	35.7
Westwood Clough & Longlands Hall	SBI	Broadleaved, Mixed and Yew Woodland	10	34.6
Westwood Clough	Ancient Woodland	Broadleaved, Mixed and Yew Woodland	10	34.6
Grimbocarandrough Woods	Ancient Woodland	Broadleaved, Mixed and Yew Woodland	10	34.2
Melandra Castle and Railway	LWS	Broadleaved, Mixed and Yew Woodland	10	33.5
Dark Peak	NIA	Broadleaved, Mixed and Yew Woodland	10	31.8, 34.2, 34.7, 36.7, 37.8
Dinting Junction Pond	LWS	Broadleaved, Mixed and Yew Woodland	10	33.5
Peak Forest Canal North	SBI	Broadleaved, Mixed and Yew Woodland	10	37.7
Ashes Farm Meadows	(potential) LWS	Broadleaved, Mixed and Yew Woodland	10	33.5
Dinting Vale Wood	Ancient Woodland	Broadleaved, Mixed and Yew Woodland	10	33.5

Site Name	Designation	Habitat Type	Lower Limit of Critical Load (Kg N/ha/yr)	APIS 2016-18 background N-dep rate (max) (kg N/ha/yr)
Elmin Pits Farm Wood	Ancient Woodland	Broadleaved, Mixed and Yew Woodland	10	34.2
Great Wood	LNR	Broadleaved, Mixed and Yew Woodland	10	35
Clought at Matley	SBI	Broadleaved, Mixed and Yew Woodland	10	34.6
Eastwood & Acre Clough	SBI	Broadleaved, Mixed and Yew Woodland	10	34.6
Huddersfield Narrow Canal (South)	SBI	Broadleaved, Mixed and Yew Woodland	10	34.6
Hurst Clough	SBI	Broadleaved, Mixed and Yew Woodland	10	35
Reddish Vale	SBI	Broadleaved, Mixed and Yew Woodland	10	68
Crookilley Wood	SBI	Broadleaved, Mixed and Yew Woodland	10	68
Dunkirk Wood	SBI	Broadleaved, Mixed and Yew Woodland	10	37.7
Audenshaw Reservoir	SBI	Broadleaved, Mixed and Yew Woodland	10	37.7
Roe Cross Quarry	SBI	Broadleaved, Mixed and Yew Woodland	10	34.6
Hurst Clough	LNR	Broadleaved, Mixed and Yew Woodland	10	35
Dinting Vale Reservoirs and Brook	LWS	Broadleaved, Mixed and Yew Woodland	10	33.5
Shire Hill (woodland)	LWS	Broadleaved, Mixed and Yew Woodland	10	35.7
Dinting Wood	LWS	Broadleaved, Mixed and Yew Woodland	10	33.5
Dinting Nature Reserve	LWS	Broadleaved, Mixed and Yew Woodland	10	33.5
Gamesley Sidings	LWS	Broadleaved, Mixed and Yew Woodland	10	33.5
Robin Wood	LWS	Broadleaved, Mixed and Yew Woodland	10	33.5
Marple Road Meadows	LWS	Broadleaved, Mixed and Yew Woodland	10	33.5
Dinting Lodge Grassland	LWS	Broadleaved, Mixed and Yew Woodland	10	33.5
The Bank	(potential) LWS	Broadleaved, Mixed and Yew Woodland	10	33.5
Millbrook Bridge Wood	Ancient Woodland	Broadleaved, Mixed and Yew Woodland	10	31.8
Reaves Stones Plantation	Ancient Woodland	Broadleaved, Mixed and Yew Woodland	10	34.2
Robin Wood	Ancient Woodland	Broadleaved, Mixed and Yew Woodland	10	33.5

Site Name	Designation	Habitat Type	Lower Limit of Critical Load (Kg N/ha/yr)	APIS 2016-18 background N-dep rate (max) (kg N/ha/yr)
Crookilley Wood	Ancient Woodland	Broadleaved, Mixed and Yew Woodland	10	68
Unnamed Ancient Woodland (Clought at Matley)	Ancient Woodland	Broadleaved, Mixed and Yew Woodland	10	34.6
Unnamed Ancient Woodland (Eastwood & Acre Clough)	Ancient Woodland	Broadleaved, Mixed and Yew Woodland	10	34.6
Unnamed Ancient Woodland (A57 Snake Road)	Ancient Woodland	Broadleaved, Mixed and Yew Woodland	10	34.2
Tom Wood	LWS	Broadleaved, Mixed and Yew Woodland	10	35.0
Warrastfold Bridge Complex	LWS	Broadleaved, Mixed and Yew Woodland	10	35.0

Designated Habitats Assessment Methodology

1.5.3 Assessment of the impact of the Scheme on sensitive ecological designations has been undertaken in accordance with DMRB LA 105 (paragraph 2.43 - 2.46 and para 2.97 to 2.102).

1.5.4 The assessment has been undertaken based on the following key inputs and assumptions:

- Designated ecological sites with statutory and non-statutory designations within the air quality study area for the Scheme been identified in accordance with DMRB LA 105 (paragraph 2.18 and 2.25).
- Relevant habitat types have been obtained from APIS where available or in consultation with a competent expert for biodiversity. Critical loads have been obtained from APIS. Where sites did not contain habitats sensitive to nitrogen deposition, then the site was excluded from further assessment.
- Receptor locations representative of those designated ecological sites with nitrogen sensitive habitats have been included in the air quality dispersion model.
- Highways England LTTE6 projection factors have been applied in accordance with DMRB LA 105 (paragraph 2.47 – 2.55) to annual mean road NO₂ at ecological receptors.
- The road NO₂ was converted to dry nutrient nitrogen deposition rates in kg N/ha/year using the conversion rates for “woodland” and “grassland” habitats given in DMRB LA 105 (para 2.44.1). Where habitat information was not available at screening (for the non-statutory designated ecological sites) nitrogen deposition rates were calculated for both “woodland” and “grassland” habitat types.

- The background nitrogen deposition rate at each designated site has been obtained from the APIS website for the base year of 2018. For the Scheme opening year of 2025 it was assumed that there was no reduction in background nitrogen deposition as a conservative approach.
- Background and road nitrogen deposition rates were combined to give a total nitrogen deposition for each ecological receptor location and the change in nitrogen deposition with the Scheme was calculated.
- Each ecological receptor location was screened against the DMRB LA 105 designated habitat screening criteria. The screening criteria were considered to be exceeded where total nitrogen deposition is greater than the relevant lower critical load, and the change in nitrogen deposition is greater than 1% of the relevant lower critical load.

1.5.5 Where ecological receptor locations exceeded the DMRB LA 105 designated habitat screening criteria then further investigation was undertaken. The following steps were applied:

- The habitat type for the designated site was reviewed in consultation with a competent expert for biodiversity.
- The magnitude of change of the nitrogen deposition was considered further to identify if the change in nitrogen deposition was greater than 0.4kg N/ha/yr.
- Where required, additional modelling was undertaken to include transect receptors to determine the distance from the road at which there would no longer be an exceedance of the designated habitat screening criteria and where the change in nitrogen deposition would no longer be greater than 0.4kg N/ha/yr. Also the number of years it would take for the nitrogen deposition to return to the 'without Scheme' deposition rate was determined.
- For locally designated non statutory ecological sites, records were requested from the relevant authorities and site visits undertaken by the competent expert for biodiversity to determine:
 - the species present in the area where DMRB LA 105 designated habitat screening criteria were exceeded.
 - whether the site air quality attribute was 'restore' or 'maintain'.
- The resultant air quality modelling data was passed to the competent expert for biodiversity to determine the significance of the changes in nitrogen deposition for the sites where DMRB LA 105 designated habitat screening criteria exceedances remained.

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