
Appendix F: Air Quality

South Wokingham Distributor Road Options Appraisal – Air Quality Technical Note

May 2014

Introduction

This technical note presents the findings of an appraisal of potential environmental constraints associated with air quality in relation to three aspects of the proposed South Wokingham Distributor Road scheme which comprise the following:

- Three proposed route options for the Proposed South Wokingham Distributor Road: Route Option A, Route Option B and Route Option C;
- Six Local Study Areas where improved access across the railway is proposed; and
- Proposed improvements to Waterloo Road / Peacock Lane.

Figures A1a 'Overall Study Area Context and Environmental Constraints Plan' and A1b 'Aerial Photography View' present the three aspects of the scheme in relation to environmental designations and general context. Figure A5 specifically relates to the study area of the Waterloo Road / Peacock Lane improvements.

These three aspects to the scheme are described in further detail below:

Proposed South Wokingham Distributor Route Options:

- Route Option A – extends from National Grid Reference (NGR) 480919, 167889 (A321 Finchampstead Road) to NGR 483090, 168266. Route Option A starts at the A321 Finchampstead Road at the junction with Oakley Drive. It runs approximately west to east, immediately south of the railway and ends just North of the railway line, approximately 300m east of the crossing of Waterloo Road. The proposed route will cross Emm Brook, Public Rights of Way 9 and 10, Easthampstead Road and Waterloo Road.
- Route Option B – extends from NGR 480919, 167889 (A321 Finchampstead Road) to NGR 483090, 168266. This route is located between Route Options A and C. Route Option B begins in the same location as Route Option A, on the A321 Finchampstead Road at the junction with Oakley Drive, and runs broadly east, diverting south round the existing detention pond. The route also ends in the same location as Route Option A, just north of the railway line, and crosses the Emm Brook, Public Rights of Way 9 and 10, Easthampstead Road and Waterloo Road.
- Route Option C – extends from NGR 480919, 167889 (A321 Finchampstead Road) to NGR 483090, 168266. Route Option C also runs broadly west to east, south of Route Options A and B. It also begins in the same location, on the A321 Finchampstead Road at the junction with Oakley Drive. Route Option C ends north of the railway, in the same location as Route Options A, B and the alternatives. Route Option C crosses the Emm Brook east of Chapel Green, Public Rights of Way 9 and 10, Ludgrove School private access, Heathlands Road, Easthampstead Road and Waterloo Road.

Alternative Alignments in relation to the Route Options

- Route Option A Alternative Link 1 – A link between Route Option B and Route Option A at Knoll Farm. This link provides an alternative route for Route Option A which does not require land from Knoll Farm.
- Route Option A Alternative Link 2 - Link between Route Option A and Route Option B to the west of the existing detention pond. This link provides an alternative route for Route Option A to the south of the detention pond which enables the Easthampstead Road junction to be located further south at the proposed Route Option B Easthampstead Road crossing.
- Route Option A Alternative Link 3 - Link between Route Option A and Route Option B. This link provides an alternative route from Route Option A passing through the existing detention pond to the proposed Route Option B Easthampstead Road crossing.
- Route Option B Alternative Link B1 –This link provides an alternative more southern and straight alignment for Route Option B east of Tesco which does not require land acquisition from Knoll Farm.
- Route Option C Alternative Link C1- Link between Route Option C to the south of the existing detention pond to Easthampstead Road, traveling down Easthampstead Road to re-join Route Option C. This link provides an alternative route for Route Option C to access Easthampstead Road which avoids the Ludgrove School private access and Heathlands Road crossings.

It should be noted that the eastern end of all of the proposed route options considered in this assessment end east of Waterloo Road just south of the railway line (see Figure A1b). From here the route will continue through the future Montague Park development to join London Road (A329) which has already been granted planning permission. It is understood that the Montague Park section of the route was part of the original Wokingham Borough Council (WBC) Strategic Development Locations (SDLs) and therefore the South Wokingham Distributor Road running through Montague Park was taken into account during the planning application. It is expected that the route section through Montague Park will be in place by the time the South Wokingham Distributor Road becomes operational.

Local Study Areas:

Six local study areas (A to F) have also been considered within this note and are identified on Figure A1b.

Footbridges across the railway are proposed at each location. These are likely to have steps and lifts/ramps to provide disabled access. For the purpose of this assessment, at each local study area potential constraints have been identified.

- Local Study Area A is centred on the A321 Finchampstead Road, at the roundabout intersection with Oakley Drive, and is approximately 140m long.
- Local Study Area B is centred over the railway line, to the south of Gipsy Lane, and is approximately 60m long.
- Local Study Area C is also centred over the railway line, to the south of Gipsy Lane, to the east of Local Study Area B, and is approximately 60m long.
- Local Study Area D is centred over the junction between Easthampstead Road and the railway line, and is approximately 70m in length.
- Local Study Area E is centred over the junction between Waterloo Road and the railway line, and is approximately 80m in length.
- Local Study Area F is approximately 340m in length, and runs over the railway line, from below the endpoint of each of the three route Options, to a point approximately 150m north of the railway line.

Waterloo Road / Peacock Lane Proposed Improvements:

The proposed improvements commences on the corner of Waterloo Road, just north of the woodland parcel to the west, and continues east along Waterloo Road and Peacock Lane until its cessation approximately 300m east of Easthampstead Park. All works are due to be completed within the highway boundary with the exception of works at the junction between Waterloo Road, Old Wokingham Road and Peacock Lane, where some additional land would likely be needed to the south west.

Definitions

Given the relative proximity of the proposed distributor road routes, six local study areas and improvements to Waterloo Road / Peacock Lane, which share some of the same existing baseline, they are herein collectively termed '**the overall study area**'. Where there are differences, they will be referred to as Route Option A, Route Option B, Route Option C, Local Study Area (A – F) and Waterloo Road / Peacock Lane improvements respectively.

In relation to the three route options where they share the same existing baseline, they will herein be referred to as '**the Site**'.

The term '**Local Study Areas**' will be used to refer to the six areas where work is proposed to improve access across the railway.

The advice presented within the summary of constraints at the end of this technical note must be considered both generic and preliminary at this stage and will need updating when more information becomes available regarding the likely infrastructure scenarios. For ease of reading, the constraints identified within this technical note are colour coded in relation to a 'traffic light system' according to their significance on the scheme. Below identifies the colour coding:

- **Red** – Constraint to Development.
- **Amber** – Constraint to Planning/Major Cost Implication
- **Green** – Manageable constraint through scheme adaptation/mitigation measures/surveys (some cost implications).

Text left in black is not considered to represent any form of constraint and provides background information and/or recommendations to further avoid environmental impacts and/or to enhance the existing environment.

Methodology

This technical note has been based upon:

- A review of WBC's air quality review and assessment reports and local monitoring data available on their website¹;
- A review of background concentrations of nitrogen dioxide (NO₂) and particulate matter (PM₁₀) obtained from DEFRA's website²;
- A review of the Environment Agency's website³ to provide information on industrial processes within the vicinity of the three proposed route options that might influence local air quality;
- Use of mapping data (including Land and Property Gazetteer address database and aerial photos) to identify likely sensitive receptors in relation to the proposed works;
- Review of traffic data provided by WSP Property and Development; and

¹ <http://www.wokingham.gov.uk/safety/pollution/air-quality-monitoring/air-quality-review-assessment/>

² <http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html>

³ www.environment-agency.gov.uk

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- Modelling results from the air pollutant dispersion model ADMS Roads to allow a comparison between the route options.

Please note that the findings of the assessment do not consider the effect of the route options on future residents within Wokingham and only assess effects in relation to existing sensitive receptors. It is anticipated that effects on future residents will be considered, and mitigation measures incorporated, as part of separate environmental studies for individual developments.

Construction

A qualitative review of the potential constraints during the construction phase of the proposed works with regards to dust and particulate matter (PM₁₀) in the overall study area has been undertaken with reference to information contained in the Institute of Air Quality Management (IAQM) guidance⁴.

A qualitative assessment of exhaust emissions (NO₂ and PM₁₀) from construction vehicles on local air quality has also been undertaken to identify potential constraints. This has been undertaken giving consideration to the likely level of construction traffic, the number and distance of receptors and the duration of the construction phase.

Operation

Proposed South Wokingham Distributor Road Route Options

A comparison of the route options once operational has also been undertaken to determine the preferred option with regards to air quality by predicting the pollutant concentrations (NO₂ and PM₁₀) generated by each option.

It should be noted that traffic data were not available for a scenario without the South Wokingham Distributor Road in place (to represent a future baseline situation) and therefore the magnitude of change in pollutant concentrations due to the South Wokingham Distributor Road being in place cannot be considered.

It is also noted that existing baseline traffic data were not available and therefore verification of the dispersion model results cannot be undertaken. The process of model verification aims to minimise modelling uncertainty and systematic error by correcting modelled results by an adjustment factor to gain greater confidence in the final results. As it has not been possible to carry out the verification process, the predicted NO₂ and PM₁₀ concentrations should be treated with caution.

Therefore, to enable the preferred route to be determined, a comparison of the predicted (unverified) total concentrations of NO₂ and PM₁₀ have been made.

Traffic data for the road network surrounding the Site were provided by WSP Property and Development for the three route options. The air dispersion model ADMS Roads has been used to model traffic emissions of NO_x and PM₁₀ for each of the route options. The following scenarios have been modelled:

- 2026 Route Option A;
- 2026 Route Option B; and
- 2026 Route Option C.

2026 is the year when the proposed South Wokingham Distributor Road is expected to be fully operational. Meteorological data used in the model were obtained from the Met Office station at Farnborough for the year 2011. This station is considered to provide data representative of the conditions in the Wokingham area.

A summary of the traffic data and pollutant emission factors used in the assessment can be found in Appendix A. This includes details of Annual Average Daily Traffic flows (AADTs), average vehicle speeds and the percentage of Heavy Goods Vehicles (HGVs). The latest version of DEFRA's emission factor toolkit (EFT -

⁴ IAQM (2012) Guidance on the Assessment of Impacts of Construction on Air Quality and the Determination of their Significance

version 5.2) published January 2013 has been used to calculate the 2026 vehicle emission rates used in the dispersion model.

A number of existing receptors (properties) were selected to represent relevant public exposure, at which road traffic pollution concentrations were predicted. Receptors were selected at locations likely to be worst affected by the proposed routes and at locations close to the junctions where the proposed routes join existing roads as detailed in the 'Sensitive Locations' section below.

Selection of Background Concentrations

Background pollutant concentrations used in the assessment have been taken from the DEFRA website⁵, where background concentrations of those pollutants included within the AQS have been mapped at a grid resolution of 1x1km for the whole of the UK. For NO₂ and PM₁₀, estimated concentrations are available for all years between 2010 and 2030. Inherent within the background maps is the assumption that background concentrations will improve (i.e. reduce) over time. However, many local authorities are finding that the results of their local monitoring do not always support this assumption, with many areas showing that pollutant concentrations have remained fairly stable over recent years. For the purposes of the assessment, 2013 background concentrations have therefore been adopted for all assessment scenarios.

Processing of Model Results

As detailed earlier, baseline traffic data are not available and therefore the results have not been verified against local monitoring data. The unverified results presented should be treated with caution and it is therefore not considered appropriate to compare the results to the objectives set out in the UK Air Quality Strategy (AQS). The purpose of the modelling was to allow a comparison between the three route options in relation to air quality once operational and therefore the assessment focuses on the comparison between the three route options, rather than overall predicted concentrations.

The modelled road contribution to NO_x concentrations were converted to annual mean NO₂ concentrations using the methodology given in LAQM.TG(09) and the NO_x:NO₂ calculator.

For PM₁₀, the modelled road contribution was converted to annual mean PM₁₀ concentrations by adding the predicted road contribution to the relevant background concentration.

The total NO₂ and PM₁₀ concentrations have been presented for each route option and the highest predicted concentrations for each receptor have been identified.

Local Study Areas and Waterloo Road / Peacock Lane Proposed Improvements

A qualitative assessment of the potential air quality constraints once all proposed works are completed and operational has also been undertaken for the Local Study Areas and proposed Waterloo Road / Peacock Lane improvements scheme, taking into account the following:

- The potential for air quality emissions generated by the proposals; and
- The proximity and number of sensitive receptors to the proposed works.

Desk Study

Baseline Conditions

Local Air Quality Management

WBC has declared one Air Quality Management Area (AQMA) in the Borough due to potential exceedences of the Air Quality Strategy (AQS)⁶ objective for annual mean NO₂ concentrations. This AQMA is located either side of the M4 motorway between the administrative boundaries of the Royal Borough of Windsor and Maidenhead (RBWM) and Reading Borough Council (RBC), and includes an area along the A329 Reading

⁵ <http://laqm.defra.gov.uk/maps/maps2010.html>

⁶ The Air Quality Strategy for England, Scotland, Wales and Northern Ireland (Volumes 1 and 2) (July 2007).

Road, where it runs under the M4. Figure A12 identifies the location of the AQMA relative to the overall study area.

The overall study area does not fall within this AQMA. Study area A (see Figure A12) is the part of the overall study area closest to the AQMA and is located approximately 2.9km southeast of the AQMA.

There are no AQMAs related to PM₁₀ concentrations within WBC. WBC's 2012 Updating and Screening Assessment (USA) recommended that automatic PM₁₀ monitoring be discontinued in the Borough as the results of several years of monitoring have demonstrated that PM₁₀ concentrations are well below the objectives and declining at a steady rate.

Existing Air Quality

The overall study area is located in an area where air quality is mainly influenced by emissions from road transport. A number of existing busy roads (such as the A321 Finchampstead Road and A329 London Road) are near to the overall study area.

The Environment Agency's website indicates that the closest Part A1 industrial process is A1 Workington Car Spares at Bennetts Commercials, which is a metal recycling site located on Waterloo Road, East Hampstead, Wokingham. It is located approximately 0.3km east of the overall study area. No notifiable releases i.e. emissions in excess of the permitted level, have been recorded for the process, therefore it is considered that emissions from this process are unlikely to have a significant effect on local air quality.

Local Air Quality Monitoring

Automatic Monitoring Stations

There are no automatic air quality monitors within the vicinity of the overall study area.

Non-Automatic Monitoring Stations

WBC has undertaken NO₂ diffusion tube monitoring at a number of locations across the Borough. Annual mean NO₂ concentrations measured at the diffusion tube sites closest to the proposed route options are presented in **Error! Reference source not found.**1 and the locations of these tubes are shown in Figure A13.

Table 1: WBC NO₂ Diffusion Tube Monitoring Results (µg/m³) Closest to the Site

Code	Site	Grid reference	Site type	2009	2010	2011	2012
WOK815	Finchampstead Rd (outside 76a), Wokingham (N.B. located within Study Area A)	480919.4, 167923.3	Roadside	-	36	34	34
WOK816	Level Crossing Easthampstead Road, Wokingham (N.B. located within Study Area D)	482127.0, 167943.0	Roadside	-	30	27	26
WOK817	Outside 398 London Road, Wokingham	483227.1, 168801.7	Roadside	-	48	37	36
WOK502	Ascot House, Kendrick Close, Wokingham	480984.5, 168229.4	Urban Centre	31	32	27	-
WOK01	Town Hall, Peach Street, Wokingham	481223.4, 168561.2	Urban Centre	32	33	31	-
WOK52	Westende Flats, London Road, Wokingham	481521.4, 168749.9	Urban Centre	37	41	40	38
WOK810	Palmer School Rd, Wokingham	481238.8, 168854.0	Roadside	25	27	24	-

Code	Site	Grid reference	Site type	2009	2010	2011	2012
WOK803	3 Wellington Rd, Wokingham	480650.7, 168543.8	Roadside	33	38	34	35
WOK805	18 Barkham Rd, Wokingham	480547.0, 168543.0	Roadside	31	32	30	30
WOK804	Oxford Rd, Wokingham	480583.0, 168622.0	Roadside	36	36	36	33
WOK802	36 Station Rd, Wokingham	480675.4, 168646.5	Roadside	31	33	31	29
WOK801	Alderman Wiley Close, Wokingham	480713.0, 168701.0	Roadside	30	31	30	28
WOK808	Mobility Shop, Station Rd, Wokingham	480807.1, 168743.0	Roadside	33	35	32	30
WOK837	74 Denmark Street, Wokingham	480995, 168688	Roadside	-	-	-	30
WOK838	Sandwich Shop, Shute End, Wokingham	480979, 168979	Roadside	-	-	-	55
WOK839	Peach Street, Wokingham	481343, 168597	Roadside	-	-	-	44
WOK844	Buckingham Court, Wokingham	481492, 168775	Roadside	-	-	-	47

The monitored concentrations between 2009 and 2012 show that the annual mean AQS objective level of 40µg/m³ has been exceeded at two locations in 2010 (WOK817 – Outside 398 London Road and WOK52 – Westende Flats, London Road) and three locations in 2012 (WOK838 Sandwich Shop, Shute End, WOK839 Peach Street and WOK844 Buckingham Court).

Background Air Quality Data

Estimated background concentrations of NO₂ and PM₁₀ for 2013 have been obtained from DEFRA's website⁷. Figure A14 shows the location of the grid squares for which background concentrations have been obtained, labelled by an allocated grid square number, as shown in **Table 2: 2013 Estimated Background Concentrations (µg/m³)**

Table 2: 2013 Estimated Background Concentrations (µg/m³)

Grid square number	Grid Reference Coordinates	2013 Estimated Background Concentrations (µg/m ³)	
		NO ₂	PM ₁₀
1	480500, 168500	17.92	15.46
2	481500, 168500	17.88	15.54
3	482500, 168500	16.35	15.23
4	483500, 168500	16.92	15.84
5	480500, 167500	18.80	16.21
6	481500, 167500	14.58	14.68
7	482500, 167500	13.68	14.45
8	483500, 167500	13.44	15.26

⁷ <http://laqm.defra.gov.uk/maps/maps2010.html>

The table above shows that local estimated background concentrations of NO₂ and PM₁₀ for 2013 are well below the AQS objective levels.

Sensitive Locations

Sensitive locations are those where members of the public or sensitive ecological habitats may be exposed to pollutants generated by the construction or operation of the proposed works. These will include locations sensitive to an increase in dust deposition as a result of on-site construction activities, or exposure to gaseous pollutants from exhaust emissions from construction traffic, and traffic using the local road network following the completion of the proposed works. It should be noted that the sensitivity of each type of receptor (i.e. human or ecological receptor) to the different pollutants (i.e. gaseous pollutants or dust) will vary depending on the nature of the receptor and the period of time over which it is exposed.

Construction

Examples of locations that are sensitive to dust and particulate matter generated by construction activities include residential dwellings, hospitals, schools, hi-tech and food processing industries and commercially sensitive horticultural land.

The guidance provided by the Institute of Air Quality Management (IAQM)⁸ regarding the impacts of construction dust and particulate matter, states that an assessment will only be required where sensitive receptors are within 350m of the proposed work.

Route Options

There are no statutory designated ecological sites within 350m of the Overall Study Area. There are however two non-statutory sites within 350m of the Site. Woodland near Ludgrove School, a Local Wildlife Site (LWS) (see Figure A.7) is located approximately 70m and 240m south of Route Option B and Option A respectively. Route Option C bisects the entire length of the Woodland near Ludgrove School LWS when the 15m buffer on either side of the route is considered. Big Wood, a proposed LWS, is located approximately 330m east of the eastern end of all the route options. According to IAQM criteria³ (see Appendix B) the surrounding area for all of the options would be considered to be of medium sensitivity for ecological receptors during the construction phase.

Potential human receptors located within 350m of the three proposed route options include residential properties and for Route Option B and C only, a school. The greatest number of residential properties are located on the residential estate to the north of the study area (e.g. Gipsy Lane, Southlands Road, Waterloo Crescent and other nearby roads) to which Route Option A would be the closest. Therefore Route Option A would be anticipated to have the greatest number of human receptors within 350m.

Receptors closest to proposed routes would be most likely to be affected by dust and PM₁₀ during construction. A review of the route options in relation to IAQM criteria⁷ (see Appendix B) for the sensitivity of the surrounding area for human receptors was undertaken and is summarised in Table 3. All of the route options are considered to be located in an edge of town area and the local PM₁₀ concentrations are expected to be below the AQS objective (less than 75% of the objective). All three route options also have less than 10 dwellings within 20m. Therefore based upon the IAQM criteria the area surrounding the three Route options would be expected to be of medium sensitivity for human receptors during the construction phase.

Table 3: IAQM Sensitivity of Surrounding Area for Human Receptors – Route Options

Option	IAQM criteria	Sensitivity of Surrounding Area for Human Receptors
A	Less than 10 dwellings within 20m	Medium

⁸ IAQM (2012) Guidance on the Assessment of Impacts of Construction on Air Quality and the Determination of their Significance

B	Less than 10 dwellings within 20m	Medium
C	Less than 10 dwellings within 20m	Medium

Local Study Areas

There are no statutory designated ecological sites within 350m of the overall study area. Two LWSs are located within 350m of the overall study area. The Local Study Areas within 350m of the LWSs are:

- Local Study Area C – Woodland near Ludgrove School LWS is approximately 310m southeast;
- Local Study Area D – Woodland near Ludgrove School LWS is approximately 350m southwest; and
- Local Study Area F – Big Wood Proposed LWS is approximately 330m east.

Based upon the local (non-statutory) designation of the ecological sites and the distance from the proposed works the sensitivity of the areas surrounding the Local Study Areas would be considered to be low for ecological receptors.

Potential human receptors located within 350m of the Local Study Areas include residential properties and schools. A review of the Local Study Areas in relation to IAQM criteria⁹ for the sensitivity of the surrounding area for human receptors was undertaken and is summarised in Table 4. All of the Local Study Areas are considered to be located in an edge of town area and the local PM₁₀ concentrations are expected to be below the AQS (less than 75%). The sensitivity of the surrounding areas for the Local Study Areas is considered to range from low to high for human receptors.

Table 4: IAQM Sensitivity of Surrounding Area for Human Receptors – Local Study Areas

Local Study Area	IAQM criteria	Sensitivity of Surrounding Area for Human Receptors
A	10-100 dwellings within 20m	High
B	10-100 dwellings within 20m	High
C	Less than 10 dwellings within 20m	Medium
D	Less than 10 dwellings within 20m	Medium
E	Less than 10 dwellings within 20m	Medium
F	No dwellings within 20m	Low

Waterloo Road / Peacock Lane Improvements

There are no statutory designated ecological sites within 350m of the proposed road improvements at Waterloo Road / Peacock Lane. The proposed improvements at Waterloo Road / Peacock Lane lies directly adjacent to the Big Wood Proposed LWS (see Figure A7) for part of the route length and is approximately 220m northwest of the West Garden Copse LWS. According to IAQM criteria⁸ the surrounding area would be considered to be of medium sensitivity for ecological receptors during the construction phase.

Potential human receptors located within 350m of the proposed road improvements include residential properties. There are less than 10 dwellings within 20m of the proposed road improvements and therefore the surrounding area would be considered to be of medium sensitivity for human receptors during the construction phase.

⁹ IAQM (2012) Guidance on the Assessment of Impacts of Construction on Air Quality and the Determination of their Significance

Operation

Sensitive receptors during the operational phase would be sensitive locations adjacent to roads that are likely to experience the greatest change in traffic flows once the proposed works are complete.

DMRB guidance¹⁰ states that the following designated ecological sites should be included in an assessment: Special Areas of Conservation (SACs (Sites of Community Importance or candidate SACs)), Special Protection Areas (SPAs), potential SPAs, Site of Special Scientific Interest (SSSIs) and Ramsar sites. DMRB guidance also suggests that human receptors within 200m of affected roads should be considered and could include residential properties and locations where sensitive members of the public (e.g. young and elderly) are likely to be present and therefore receptors such as schools, hospitals and care homes should be considered.

Route Options

Baseline traffic data are not currently available and therefore it has not been possible to establish which roads would experience the greatest change in traffic flows and the relevant receptors along these roads. However it is anticipated that the proposed route options and the roads immediately adjoining the proposed South Wokingham Distributor Road (e.g. Finchampstead Road (A321), London Road (A329) and Easthampstead Road) would experience the greatest change in traffic flows due to the South Wokingham Distributor Road becoming operational. Therefore residential properties and schools along these routes have been assessed.

To allow a comparison between the route options, sensitive receptors were selected in the vicinity of the proposed route options and around the junctions where the roads would join the existing road networks, with consideration given to the density of receptors within these areas to ensure the results of the assessment are representative of the receptors potentially affected by the scheme. The human receptors included in the model scenarios for the route options are presented in Table 5 and shown on Figure A15. Following DMRB guidance there were no ecological sites which should be considered in the assessment within the area considered.

Table 5: Receptor Locations Used in the Assessment

Receptor Number	Receptor Name	Grid Reference	
		x	y
1	101 Gipsy Lane	481261.4	167970
2	125 Gipsy lane	481333.1	167952.5
3	145 Gipsy Lane	481420.2	167938.2
4	Satara, Gipsy Lane	481606.1	167893.3
5	Well Cottage, Southlands Road	481845.8	167895.2
6	149 Easthampstead Road	482059.8	167895.6
7	Cornaways, Easthampstead Road	481990.6	168036.4
8	23 Waterloo Crescent	482236.4	167949.4
9	45 Waterloo Crescent	482317.4	167981.2
10	65 Waterloo Crescent	482424.9	168008.3
11	123 Waterloo Road	482555.9	168046
12	163 Waterloo Road	482673.4	168079.1
13	Waterloo Cottage, Waterloo Road	482837.5	168109.1
14	The Knoll Farm	481314.6	167892.6
15	92 Finchampstead Road	480829.2	167778.6
16	6 Oakview, Finchampstead Road	480881.8	167894.8

¹⁰ DMRB (2007). Volume 11, Section 3, Part 1 – Air Quality

Receptor Number	Receptor Name	Grid Reference	
		x	y
17	1 to 6 Landen Court, Finchampstead Road	480894.3	167914.8
18	76a Finchampstead Road	480930.1	167913
19	68 Finchampstead Road	480956.3	168015.6
20	Chapel Green Cottages	481276.1	167541.7
21	Ludgrove School	481735.5	167447.3
22	East Lodge, Easthampstead Road	482404.7	167695.4
23	Wood's Farm, Easthampstead Road	482446.6	167741.4
24	3 Easthampstead Road	482479.9	167605.5
25	Pearce's Farm, Easthampstead Road	482731.5	167431.8
26	Little Grange Nursery, East Hampstead Road	482779.9	167314.9
27	Britton's Farm	482872.6	167765.9
28	The Barn, Great Oaks	483305.7	167732.6
29	278 London Road	482632.8	168622.6
30	302 London Road	482761.9	168687.2
31	322 London Road	482877.6	168744.4
32	1 Plough Lane	483050.4	168816.1
33	398 London Road	483233.9	168811.1
34	Greenacres, St Annes Drive	483396.6	168661.8

Local Study Areas

Sensitive receptors near to the Local Study Areas would include residential properties and schools.

Waterloo Road / Peacock Lane Improvements

Sensitive receptors within 200m of the Waterloo Road / Peacock Lane improvements would include residential properties along Peacock Lane and Waterloo Road, of which there appear to be less than 10.

Summary of Air Quality Constraints

The potential air quality constraints related to the proposed works are summarised below.

Construction

The potential construction impacts identified below could apply to all the proposed works (including the three route options, Local Study Areas and Waterloo Road / Peacock Lane improvements) and could affect receptors identified earlier in the 'Sensitive Locations' section.

Increase in Dust and PM₁₀ Generated by Site Activities

During the site preparation and construction phase, activities undertaken on the Site may cause dust and particulate matter to be emitted to the atmosphere. If transported beyond the Site boundary, dust and particulate matter can have an adverse impact on local air quality at nearby sensitive receptors unless suitable mitigation and control measures are applied at source.

Due to its relatively large particle size (typically 1-75µm), dust is only resident in the atmosphere for short periods of time after its initial release and falls out of suspension relatively quickly and in proximity to the source of emission. Dust is therefore unlikely to cause long-term or widespread changes to local air quality; however, if it is transported beyond the Site boundary, dust deposition on property and cars can cause 'soiling' and discolouration. This may result in complaints of nuisance through amenity loss or perceived damage caused.

As PM₁₀ is much smaller (typically less than 10µm in aerodynamic diameter) in size than dust, it remains suspended in the atmosphere for a longer period and can be transported by wind over a wider area. It is small enough to be drawn into the lungs during breathing, which can cause an adverse reaction particularly in sensitive members of the public.

Dust and PM₁₀ emissions can also have an adverse effect on sensitive ecological habitats. For example dust deposition may reduce a plant's efficiency in photosynthesising and there could be indirect impacts on fauna (e.g. foraging habitats).

The surrounding ecological receptors for all of the options would be considered to be of medium sensitivity at most. However, due to the proximity of Route Option C to the Woodland near Ludgrove School LWS (the proposed route borders the northern edge of the woodland) it is likely that this route option would have the greatest potential impact on ecological receptors due to construction dust and PM₁₀.

The areas surrounding the three route options are considered to be of comparable sensitivity (medium) for human receptors during the construction phase, with less than 10 dwellings within 20m of any of the route options.

Overall, Route Options A or B are therefore considered to be the preferred options in relation to potential impacts from increases in construction dust and PM₁₀.

The above construction phase effects will be of a temporary nature (i.e. for the duration of the construction phases) and, provided appropriate mitigation measures are applied, all three route options are unlikely to result in a significant impact on ecological or human receptors and are not likely to be a constraint to any of the proposed works.

Increase in Pollutant Concentrations (namely NO₂ and PM₁₀) as a Result of Exhaust Emissions Arising from Construction Traffic and Plant

Traffic associated with site preparation and construction activities of the proposed works will contribute to traffic levels on the surrounding road network. Exhaust emissions from construction vehicles could have an impact on local air quality both on-site and adjacent to the routes used by these vehicles to access the Site. In addition, exhaust emissions from on-site plant operating during this phase will contribute to local pollutant concentrations in the vicinity of the equipment/plant. The numbers of construction vehicles involved are unknown at this stage; however, the increase in pollutant concentrations is likely to be insignificant.

However, with appropriate mitigation measures this is not considered to pose a constraint to the proposals given that any effects will be temporary and will only last for the duration of the works.

Operation

Increase in pollutant concentrations (namely NO₂ and PM₁₀) as a result of exhaust emissions arising from operational traffic

Route Options

The proposed route options will cause a change in the distribution, composition and speed of existing traffic on the local road network. It would be expected that changes in vehicle flows on the existing road network would be greatest around the junctions with the proposed South Wokingham Distributor Road. The main pollutants of concern for road traffic are typically considered to be NO₂, PM₁₀, carbon monoxide (CO) and benzene (C₆H₆). Of these pollutants, emissions of NO₂ and PM₁₀ are most likely to result in exceedences of the statutory air quality limit values and objectives. There is the potential for adverse effects on local air quality to occur at sensitive receptors located close to the alignment of the proposed route options and/or alongside roads where traffic flows are predicted to increase as a result of the operation of the proposed route options. However, some roads may experience a reduction in traffic flows, which will have a beneficial impact on air quality at sensitive receptors that are located alongside them.

Local monitoring data and the DEFRA background concentration estimates suggest that the AQS objectives are not currently being exceeded at the majority of sensitive receptors identified. However, data for some of the local monitoring locations along London Road (A329) and in the centre of Wokingham has been close to or exceeding the annual NO₂ AQS objective in recent years and therefore any increase in traffic flows in this area could lead to further exceedences of the objective. The South Wokingham Distributor Road is however likely to redistribute traffic that would otherwise have used London Road (A329) and therefore has the potential to reduce overall traffic flows on London Road. Detailed modelling will need to be undertaken once a preferred route option has been selected but it is considered unlikely that air quality will be a constraint once the South Wokingham Distributor Road is operational.

Modelling Results

Table 6 and Table 7 summarise the total NO₂ and PM₁₀ concentration modelling results. The highest NO₂ and PM₁₀ concentrations predicted for each receptor are presented in **bold**.

Table 6: Summary of Total NO₂ Modelling Results

Receptor Number	Receptor Name	2026 NO ₂ Concentration (µg/m ³)			
		Option A	Option B	Option C	Range
1	101 Gipsy Lane	15.6	15.3	15.1	0.5
2	125 Gipsy lane	15.6	15.3	15.1	0.5
3	145 Gipsy Lane	15.6	15.2	15.0	0.5
4	Satara, Gispsy Lane	15.6	15.1	14.9	0.6
5	Well Cottage, Southlands Road	15.5	15.0	14.9	0.6
6	149 Easthampstead Road	15.0	14.3	14.2	0.8
7	Cornaways, Easthampstead Road	18.8	18.8	18.7	0.1
8	23 Waterloo Crescent	15.2	14.7	14.6	0.6
9	45 Waterloo Crescent	14.8	14.5	14.3	0.5
10	65 Waterloo Crescent	17.4	17.0	16.8	0.6
11	123 Waterloo Road	17.2	16.9	16.7	0.5
12	163 Waterloo Road	17.1	16.8	16.7	0.4
13	Waterloo Cottage, Waterloo Road	17.2	17.1	17.0	0.2
14	The Knoll Farm	17.7	15.5	15.0	2.7

Receptor Number	Receptor Name	2026 NO ₂ Concentration (µg/m ³)			
		Option A	Option B	Option C	Range
15	92 Finchampstead Road	24.5	24.5	24.4	0.1
16	6 Oakview, Finchampstead Road	23.7	23.6	23.6	0.1
17	1 to 6 Landen Court, Finchampstead Road	23.8	23.8	23.7	0.1
18	76a Finchampstead Road	25.7	25.6	25.6	0.1
19	68 Finchampstead Road	23.4	23.3	23.5	0.2
20	Chapel Green Cottages	14.8	14.8	16.5	1.7
21	Ludgrove School	14.7	14.7	14.8	0.1
22	East Lodge, Easthampstead Road	14.8	15.0	14.9	0.2
23	Wood's Farm, Easthampstead Road	15.1	15.4	15.1	0.3
24	3 Easthampstead Road	14.5	14.6	14.9	0.4
25	Pearce's Farm, Easthampstead Road	15.0	15.0	15.6	0.6
26	Little Grange Nursery, East Hampstead Road	14.1	14.1	14.2	0.1
27	Britton's Farm	14.0	14.3	14.3	0.3
28	The Barn, Great Oaks	14.0	14.0	14.1	0.1
29	278 London Road	18.3	18.3	18.4	0.1
30	302 London Road	18.0	18.0	18.0	0.0
31	322 London Road	18.0	18.0	18.0	0.0
32	1 Plough Lane	19.8	19.8	19.8	0.0
33	398 London Road	21.8	21.8	21.6	0.2
34	Greenacres, St Annes Drive	17.6	17.6	17.5	0.1

Table 7: Summary of Total PM₁₀ Modelling Results

Receptor Number	Receptor Name	2026 PM ₁₀ Concentration (µg/m ³)			
		Option A	Option B	Option C	Range
1	101 Gipsy Lane	15.1	15.0	14.9	0.2
2	125 Gipsy lane	15.1	15.0	14.9	0.2
3	145 Gipsy Lane	15.1	14.9	14.8	0.3
4	Satara, Gipsy Lane	15.1	14.9	14.8	0.3
5	Well Cottage, Southlands Road	15.1	14.9	14.8	0.3
6	149 Easthampstead Road	15.0	14.7	14.6	0.4
7	Cornaways, Easthampstead Road	15.9	15.9	15.8	0.1
8	23 Waterloo Crescent	15.1	14.9	14.8	0.3

Receptor Number	Receptor Name	2026 PM ₁₀ Concentration (µg/m ³)			
		Option A	Option B	Option C	Range
9	45 Waterloo Crescent	14.9	14.8	14.7	0.2
10	65 Waterloo Crescent	15.7	15.5	15.4	0.3
11	123 Waterloo Road	15.6	15.4	15.4	0.2
12	163 Waterloo Road	15.5	15.4	15.4	0.1
13	Waterloo Cottage, Waterloo Road	15.6	15.5	15.5	0.1
14	The Knoll Farm	15.9	15.0	14.9	1.0
15	92 Finchampstead Road	18.5	18.5	18.5	0.0
16	6 Oakview, Finchampstead Road	18.2	18.1	18.1	0.1
17	1 to 6 Landen Court, Finchampstead Road	18.2	18.2	18.2	0.0
18	76a Finchampstead Road	19.0	19.0	19.0	0.0
19	68 Finchampstead Road	17.7	17.7	17.7	0.0
20	Chapel Green Cottages	14.7	14.8	15.5	0.8
21	Ludgrove School	14.7	14.7	14.8	0.1
22	East Lodge, Easthampstead Road	14.9	15.0	14.9	0.1
23	Wood's Farm, Easthampstead Road	15.1	15.2	15.0	0.2
24	3 Easthampstead Road	14.8	14.8	15.0	0.2
25	Pearce's Farm, Easthampstead Road	15.0	15.0	15.3	0.3
26	Little Grange Nursery, East Hampstead Road	14.6	14.6	14.7	0.1
27	Britton's Farm	14.6	14.7	14.7	0.1
28	The Barn, Great Oaks	15.5	15.5	15.5	0.0
29	278 London Road	16.0	16.0	16.1	0.1
30	302 London Road	15.9	15.9	15.9	0.0
31	322 London Road	15.9	15.9	15.9	0.0
32	1 Plough Lane	17.0	17.0	17.0	0.0
33	398 London Road	18.0	18.0	17.9	0.1
34	Greenacres, St Annes Drive	16.1	16.1	16.1	0.0

Option A has the greatest number of receptors with the highest concentrations for both NO₂ and PM₁₀ and Option B has the least number of receptors with the highest concentrations for both NO₂ and PM₁₀.

The NO₂ and PM₁₀ modelling results for the receptors near to the junctions where the route options would join the existing road networks generally show less difference in concentrations between the different route options. For example, the difference in concentrations of NO₂ adjacent to the junctions (Receptors 15 to 19 adjacent to Finchampstead Road and Receptors 29 to 33 adjacent to London Road, see Figure A15) are 0.2µg/m³ and below which infers that there is unlikely to be a significant difference between the scheme options on local air quality on the immediate surrounding road network.

There is generally a greater difference in the concentrations for the route options at receptors located closest to the proposed route options themselves. For example, the highest range in NO₂ concentrations (2.7µg/m³) is predicted at Receptor 14 (The Knoll Farm). Receptor 14 is located close to Route Option A and therefore will experience higher concentrations of NO₂ with Route Option A in place rather than Route Options B and C.

Route Option A also has a higher number of receptors located close to the proposed route (including a residential estate located north of the proposed route) than Route Option B and Route Option C.

Based upon the results presented above it is expected that the difference in operational air quality impacts between the route options would be greatest at receptors located closest to the proposed routes themselves rather than at receptors located on the wider road network.

The results suggest that out of the three modelled scenarios Route Option B would have the least impact on air quality at existing receptors once operational.

Local Study Areas

Once operational the proposed footbridges across the railway are proposed at each Local Study Area will provide pedestrian and cyclist access only. It is assumed that the implementation of these crossings will not affect traffic and there will therefore be no additional emissions or impacts to air quality. **Therefore, no air quality constraints are anticipated with the operational phase within the Local Study Areas.**

Waterloo Road / Peacock Lane Improvements

The Waterloo Road / Peacock Lane improvements will not directly generate any additional operational traffic but may increase the potential capacity of the road and improve the free flow of traffic. This could result in an increase in the volume of road traffic using this route. In addition, the improvements could increase the proximity of nearby sensitive receptors to traffic emissions. However there are a limited number of receptors within 200m of the proposed improvements (less than 10 residential properties within 20m and no statutory designated ecological sites) and the majority of the improvements will be completed within the existing highway boundary. **Therefore it is considered unlikely that air quality will be a constraint once road improvements are complete and the road is operational.**

Recommendations

It is recommended that once a route option has been confirmed and further details are available in relation to all the works, a further air quality assessment should be undertaken to determine the potential effect on human and ecological receptors, the scope of which will need to be agreed with the relevant Environmental Health Officer at WBC.

Appendix A – Traffic Data and Emission Factors used in Model

The tables below present the traffic data and emission factors used in the air quality modelling scenarios.

It should be noted that the traffic data provided by WSP Property and Development contained two sets of speed data, one for average peak hour and one for average free flow conditions. To obtain an estimate of the average daily speed for use in the air quality modelling, an average time-weighted speed has been calculated, based on six peak hours and 18 free-flow hours within the 24-hour period. Speed data has been kept constant along each link and not decreased at junctions – the same approach has been used for all model scenarios.

Route Option A

GIS ID	AADT	%HGV	Average Daily Speed (kph)	NO _x Emission Factors (g/km/s)	PM ₁₀ Emission Factors (g/km/s)
10301032	24774	1	78.7	0.0377	0.0092
10331030	20310	2	75.6	0.0307	0.0077
10841083	4859	0	31.2	0.0099	0.0017
11031083	13955	1	45.6	0.0239	0.0051
11041084	315	0	33.0	0.0006	0.0001
11091106	20043	3	42.8	0.0371	0.0078
11131105	6454	1	43.9	0.0113	0.0024
14401106	37891	3	34.7	0.0796	0.0147
22561102	17122	2	45.4	0.0300	0.0065
23141024	20061	1	37.7	0.0382	0.0074
23141030	33509	1	49.3	0.0552	0.0123
30311024	5427	1	42.2	0.0097	0.0020
40111082	8825	1	30.2	0.0189	0.0033
40111083	9470	1	29.9	0.0203	0.0035
40124011	644	0	32.0	0.0013	0.0002
40154012	542	0	32.7	0.0011	0.0002
40184015	1880	0	32.4	0.0038	0.0007
44161106	23871	2	37.6	0.0466	0.0090
44161108	22857	2	40.2	0.0429	0.0086
44241102	10433	3	48.3	0.0180	0.0041
44291025	1812	0	31.3	0.0037	0.0006
44291104	315	0	32.6	0.0006	0.0001
44311025	15824	1	41.6	0.0285	0.0058
44341087	24052	2	39.3	0.0458	0.0091
44341440	24419	2	37.6	0.0477	0.0092
60732314	16479	1	39.6	0.0305	0.0061
70091024	14677	2	41.8	0.0270	0.0056
70091025	16217	1	41.5	0.0293	0.0060

GIS ID	AADT	%HGV	Average Daily Speed (kph)	NO _x Emission Factors (g/km/s)	PM ₁₀ Emission Factors (g/km/s)
70096073	1793	0	29.7	0.0037	0.0006
80011103	13955	1	45.7	0.0239	0.0051
80012256	16877	2	44.5	0.0299	0.0064
80021105	5715	1	48.6	0.0095	0.0021
80027028	1516	1	41.9	0.0027	0.0006
80048001	15959	3	40.0	0.0308	0.0062
80048003	15358	3	41.5	0.0290	0.0060
80058001	14183	1	41.0	0.0258	0.0052
80058002	14543	1	41.5	0.0263	0.0054
80066073	17875	1	41.2	0.0324	0.0066
80068002	16686	1	41.0	0.0303	0.0061
80078003	14725	3	41.7	0.0277	0.0057
80081440	18534	3	37.5	0.0372	0.0072
80088007	14811	3	40.7	0.0283	0.0058

Route Option B

GIS ID	AADT	%HGV	Average Daily Speed (kph)	NO _x Emission Factors (g/km/s)	PM ₁₀ Emission Factors (g/km/s)
10301032	24710	1	78.8	0.0377	0.0092
10331030	20286	2	75.7	0.0307	0.0077
10841083	4886	0	31.2	0.0100	0.0018
11031083	14759	0	45.5	0.0248	0.0053
11041084	344	0	33.0	0.0007	0.0001
11091106	20009	3	42.8	0.0371	0.0078
11131105	6358	1	43.9	0.0111	0.0023
14401106	37897	3	34.8	0.0795	0.0147
22561102	17004	2	45.4	0.0298	0.0064
23121103	14759	0	45.6	0.0248	0.0053
23122256	16744	2	44.6	0.0297	0.0063
23141024	20175	1	37.7	0.0384	0.0074
23141030	33411	1	49.3	0.0550	0.0123
30311024	5376	1	42.2	0.0096	0.0020
40111082	9189	1	30.0	0.0197	0.0034
40111083	10102	1	29.7	0.0218	0.0037
40124011	913	0	31.9	0.0018	0.0003

GIS ID	AADT	%HGV	Average Daily Speed (kph)	NO _x Emission Factors (g/km/s)	PM ₁₀ Emission Factors (g/km/s)
40154012	812	0	32.7	0.0016	0.0003
40184015	2138	0	32.4	0.0043	0.0008
44161106	23868	2	37.5	0.0467	0.0090
44161108	22980	2	40.2	0.0432	0.0087
44241102	10311	3	48.3	0.0178	0.0040
44291025	1784	0	31.3	0.0036	0.0006
44291104	344	0	32.6	0.0007	0.0001
44311025	15905	1	41.6	0.0287	0.0059
44341087	24058	2	39.3	0.0458	0.0091
44341440	24383	2	37.7	0.0475	0.0092
60732314	16129	1	39.8	0.0298	0.0059
60781440	17300	3	38.2	0.0343	0.0067
70091024	14842	2	41.8	0.0273	0.0056
70091025	16278	1	41.5	0.0294	0.0060
70096073	1688	0	29.7	0.0035	0.0006
70182312	14476	3	40.3	0.0278	0.0056
70207018	13798	3	41.8	0.0259	0.0054
70226078	13270	3	41.0	0.0252	0.0052
70227020	13147	3	42.0	0.0246	0.0051
70261105	5618	1	48.6	0.0093	0.0021
70287026	1516	1	42.0	0.0027	0.0006
70302312	14071	1	41.0	0.0256	0.0052
70307026	14267	1	41.5	0.0258	0.0053
70626073	17423	1	41.3	0.0315	0.0064
70627026	16225	1	41.1	0.0295	0.0060

Route Option C

GIS ID	AADT	%HGV	Average Daily Speed (kph)	NO _x Emission Factors (g/km/s)	PM ₁₀ Emission Factors (g/km/s)
10301032	24587	1	78.7	0.0375	0.0091
10331030	19806	2	75.6	0.0300	0.0075
10841083	5236	0	31.1	0.0107	0.0019
11031083	13843	0	45.6	0.0233	0.0050
11041084	407	0	33.0	0.0008	0.0001
11091106	20022	3	42.8	0.0371	0.0078

GIS ID	AADT	%HGV	Average Daily Speed (kph)	NO _x Emission Factors (g/km/s)	PM ₁₀ Emission Factors (g/km/s)
11131105	6364	1	44.0	0.0111	0.0023
14401106	37470	3	34.9	0.0784	0.0146
22561102	17135	2	45.5	0.0300	0.0065
23141024	20894	1	37.7	0.0397	0.0077
23141030	32185	1	49.1	0.0531	0.0119
30311024	5447	1	42.1	0.0097	0.0020
40111082	8852	1	30.2	0.0189	0.0033
40111083	9737	1	29.8	0.0209	0.0036
40124011	885	0	31.9	0.0018	0.0003
40154012	782	0	32.6	0.0016	0.0003
40184015	2023	0	32.4	0.0040	0.0007
44161106	23856	2	37.6	0.0466	0.0090
44161108	22855	2	40.2	0.0429	0.0086
44241102	10661	3	48.3	0.0184	0.0041
44291025	1736	0	31.1	0.0035	0.0006
44291104	407	0	32.6	0.0008	0.0001
44311025	17113	1	41.3	0.0310	0.0063
44341087	24991	2	39.2	0.0477	0.0095
44341440	25281	2	37.5	0.0495	0.0096
60732314	14225	1	40.0	0.0262	0.0052
70091024	15488	2	41.7	0.0285	0.0059
70091025	17430	1	41.3	0.0315	0.0064
70096073	2195	0	29.8	0.0046	0.0008
80091440	15947	3	38.4	0.0315	0.0062
80108009	11858	3	41.4	0.0224	0.0046
80118010	11672	3	42.3	0.0218	0.0045
80128011	12284	3	42.1	0.0230	0.0048
80131103	13843	0	45.8	0.0232	0.0050
80132256	16872	2	44.7	0.0298	0.0064
80138012	12938	3	40.8	0.0247	0.0050
80148013	10405	1	42.0	0.0187	0.0038
80151105	5607	1	48.6	0.0093	0.0021
80157028	1518	1	42.0	0.0027	0.0006
80158014	11103	1	42.2	0.0199	0.0041
80166073	16027	1	41.6	0.0289	0.0059

GIS ID	AADT	%HGV	Average Daily Speed (kph)	NO _x Emission Factors (g/km/s)	PM ₁₀ Emission Factors (g/km/s)
80168015	14706	1	41.3	0.0266	0.0054

Appendix B – IAQM Guidance – Examples of Factors Defining Sensitivity of an Area

Sensitivity of Surrounding Area	Examples	
	Human Receptors	Ecological Receptors ⁽¹⁾
Very High	<ul style="list-style-type: none"> Very densely populated area More than 100 dwellings within 20m Local PM₁₀ concentrations exceed the objective Very sensitive receptors nearby (e.g. hospitals) Construction works continuing in one area of the site for more than 1 year 	European Designated site
High	<ul style="list-style-type: none"> Densely populated area 10-100 dwellings with 20m of the site Schools, Hi Tech & Food Processing industries nearby Local PM₁₀ concentrations are within 10% of the objective Commercially sensitive horticultural land within 20m 	Nationally Designated site
Medium	<ul style="list-style-type: none"> Suburban of edge of town area Less than 10 dwellings within 20m Local PM₁₀ concentrations between 10-25% below the objective 	Locally Designated site
Low	<ul style="list-style-type: none"> Rural area/industrial area No dwellings within 20m Local PM₁₀ concentrations are below 75% of the objective Wooded area between site and receptors 	No Designations
⁽¹⁾ Only if there are ecological habitats present that may be sensitive to an increase in dust and particulate deposition.		