CoPlan Estates & Reigate and Banstead Borough Council

Proposed Commercial and Residential Development, Marketfield Road, Redhill, Surrey

Air Quality Assessment

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Executive Summary

WYG have undertaken an Air Quality Assessment to support the proposed commercial and residential development on Marketfield Road, Redhill, Surrey.

The potential effects during the construction phase include fugitive dust emissions from site activities, such as demolition, earthworks, construction and trackout. The impacts during the operational phase take into account of exhaust emissions from additional road traffic generated due to the proposed development.

During the construction phase, it is anticipated that dust sensitive receptors will potentially experience increased levels of dust and particulate matter before using any mitigation and control measures. However, these are predicted to be short term and temporary impacts. Throughout this period, the potential impacts from construction on air quality will be managed through site specific mitigation measures within the assessment. With these mitigation measures in place, the effects from construction phase are predicted to be not significant.

The assessment of the significance of the effects of the proposed development with respect to NO_2 exposure is determined to be 'negligible' for all other receptors. With respect to predicted PM_{10} exposure, the significance of the proposed development is determined to be 'negligible', based on assumptions detailed throughout the report.

Following the adoption of the recommended mitigation measures, the development is not considered to be contrary to any of the national, regional or local planning policies.

Based on the assessment undertaken and data, methodology and assumptions used it is concluded that the site is suitable for the proposed development.

1. Introduction

CoPlan Estates & Reigate and Banstead Borough Council commissioned WYG Environmental Planning and Transport (WYG) to prepare an Air Quality Assessment to support an application for the proposed commercial and residential development on Marketfield Road, Redhill, Surrey.

1.1 Site Location and Context

The approximate United Kingdom National Grid Reference (NGR) is 527900, 150500. The Site is bounded to the north by commercial premises, to the east by Marketfield Road, to the south by High Street and Commercial Premises and to the west by Retail Complex. Reference should be made to Figure 1 for a map of the proposed development site and surrounding area.

The following assessment stages have been undertaken as part of this assessment:

- Baseline evaluation;
- Assessment of potential air quality impacts during the construction phase;
- Assessment of potential air quality impacts during the operational phase; and,
- Identification of mitigation measures (as required).

The results of the assessment are detailed in the following sections of this report.

The construction phase assessment considers the potential effects of dust and particulate emissions from site activities and materials movement based on a qualitative risk assessment method based on the Institute of Air Quality Management's (IAQM) 'Guidance on the Assessment of Dust from Demolition and Construction' document, published in 2014.

The assessment of the potential air quality impacts that are associated with the operational phase has focused on the predicted impact of changes in ambient nitrogen dioxide (NO_2) and particulate matter with an aerodynamic diameter of less than 10µm (PM_{10}) as a result of the development at key local receptor locations. The changes have been referenced to EU air quality limits and UK air quality objectives and the magnitude and significance of the changes have been referenced to non statutory guidance issued by Environmental Protection UK (EPUK).

2. Policy and Legislative Context

2.1 Documents Consulted

The following documents were consulted during the undertaking of this assessment:

Legislation and Best Practice Guidance

- National Planning Policy Framework, Department for Communities and Local Government, March 2012;
- Planning Practice Guidance: Air Quality, March 2014;
- The Air Quality Standards Regulations, 2010;
- The Air Quality Strategy for England, Scotland, Wales and Northern Ireland, 2007;
- The Environment Act, 1995;
- Local Air Quality Management Technical Guidance LAQM.TG(09), DEFRA, 2009;
- Design Manual for Roads and Bridges, Volume 11, Section 3, Part 1, HA 207/07 - Air Quality, Highways Agency, 2007;
- Land-Use Planning & Development Control: Planning For Air Quality, EPUK & IAQM, 2015; and,
- Guidance on the Assessment of Dust from Demolition and Construction, IAQM, 2014.

Websites Consulted

- Google maps (maps.google.co.uk);
- The UK National Air Quality Archive (www.airquality.co.uk);
- Department for Transport Matrix (www.dft.go.uk/matrix);
- emapsite.com;
- Multi-Agency Geographic Information for the Countryside (http://magic.defra.gov.uk/);
- Planning Practice Guidance (http://planningguidance.planningportal.gov.uk/); and
- Reigate and Banstead Borough Council (http://www.reigate-banstead.gov.uk/)

Site Specific Reference Documents

- 2011 Air Quality Progress Report for Reigate and Banstead Council; and
- Reigate and Banstead Borough Council, Local Plan and Core Strategy, July 2014

2.2 Air Quality Legislative Framework

European Legislation

European air quality legislation is consolidated under Directive 2008/50/EC, which came into force on 11th June 2008. This Directive consolidates previous legislation which was designed to deal with specific pollutants in a consistent manner and provides new air quality objectives for fine particulates. The consolidated Directives include:

- **Directive 1999/30/EC** – the First Air Quality "Daughter" Directive – sets ambient air limit values for NO_2 and oxides of nitrogen, sulphur dioxide, lead and PM_{10};
- **Directive 2000/69/EC** – the Second Air Quality "Daughter" Directive – sets ambient air limit values for benzene and carbon monoxide; and,
- **Directive 2002/3/EC** – the Third Air Quality "Daughter" Directive – seeks to establish long-term objectives, target values, an alert threshold and an information threshold for concentrations of ozone in ambient air.

The fourth daughter Directive was not included within the consolidation and is described as:

- **Directive 2004/107/EC** – sets health-based limits on polycyclic aromatic hydrocarbons, cadmium, arsenic, nickel and mercury, for which there is a requirement to reduce exposure to as low as reasonably achievable.

UK Legislation

The Air Quality Standards Regulations (2010) seek to simplify air quality regulation and provide a new transposition of the Air Quality Framework Directive, First, Second and Third Daughter Directives and also transpose the Fourth Daughter Directive within the UK. The Air Quality Limit Values are transposed into the updated Regulations as Air Quality Standards, with attainment dates in line with the European Directives. SI 2010 No. 1001, Part 7 Regulation 31 extends powers, under Section 85(5) of the Environment Act (1995), for the Secretary of State to give directions to Local Authorities (LAs) for the implementation of these Directives.

The UK Air Quality Strategy is the method for implementation of the air quality limit values in England, Scotland, Wales and Northern Ireland and provides a framework for improving air quality and protecting human health from the effects of pollution.

For each nominated pollutant, the Air Quality Strategy sets clear, measurable, outdoor air quality standards and target dates by which these must be achieved; the combined standard and target date is referred to as the Air Quality Objective (AQO) for that pollutant. Adopted national standards are based on the recommendations of the Expert Panel on Air Quality Standards (EPAQS) and have been translated into a

set of Statutory Objectives within the Air Quality (England) Regulations (2000) SI 928, and subsequent amendments.

The AQOs for pollutants included within the Air Quality Strategy and assessed as part of the scope of this report are presented in Table 1 along with European Commission (EC) Directive Limits and World Health Organisation (WHO) Guidelines.

Table 1 Air Quality Standards, Objectives, Limit and Target Values

Pollutant	Applies	Objective	Concentration Measured as[10]	Date to be achieved and maintained thereafter	European Obligations	Date to be achieved and maintained thereafter	New or existing
PM_{10}	UK	50µg/m^3 by end of 2004 (max 35 exceedances a year)	24-hour mean	1st January 2005	50µg/m^3 by end of 2004 (max 35 exceedances a year)	1st January 2005	Retain Existing
	UK	40µg/m^3 by end of 2004	Annual mean	1st January 2005	40µg/m^3	1st January 2005	
NO_2	UK	200µg/m^3 not to be exceeded more than 18 times a year	1-Hour Mean	31st December 2005	200µg/m^3 not to be exceeded more than 18 times a year	1st January 2010	Retain Existing
	UK	40µg/m^3	Annual Mean	31st December 2005	40µg/m^3	1st January 2010	

Within the context of this assessment, the annual mean objectives are those against which residential receptors will be assessed and the short term objectives apply to all receptor locations, both residential and non residential.

Local Air Quality Management

Under Section 82 of the Environment Act (1995) (Part IV) Local Authorities (LAs) are required to periodically review and assess air quality within their area of jurisdiction under the system of Local Air Quality Management (LAQM). This review and assessment of air quality involves assessing present and likely future air quality against the AQOs. If it is predicted that levels at the façade of buildings where members of the public are regularly present (normally residential properties) are likely to be exceeded, the LA is required to declare an Air Quality Management Area (AQMA). For each AQMA the LA is required to produce an Air Quality Action Plan (AQAP), the objective of which is to reduce pollutant concentrations in pursuit of the AQOs.

2.3 Planning and Policy Guidance

National Policy

The National Planning Policy Framework (NPPF) principally brings together and summarises the suite of Planning Policy Statements (PPS) and Planning Policy Guidance (PPG) which previously guided planning policy making. The NPPF broadly retains the principles of PPS 23: Planning and Pollution Control and states that:

> *'Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan.'*

The Planning Practice Guidance (PPG) web-based resource was launched by the Department for Communities and Local Government (DCLG) on 6 March 2014 to support the National Planning Policy Framework and make it more accessible. A review of PPG: Air Quality identified the following guidance:

> *'When deciding whether air quality is relevant to a planning application, local planning authorities should consider whether the development would:*
>
> *Significantly affect traffic in the immediate vicinity of the proposed development site or further afield. This could be by generating or increasing traffic congestion; significantly changing traffic volumes, vehicle speed or both; or significantly altering the traffic composition on local roads. Other matters to consider include whether the proposal involves the development of a bus station, coach or lorry park; adds to turnover in a large car park; or result in construction sites that would generate large Heavy Goods Vehicle flows over a period of a year or more.*
>
> *Introduce new point sources of air pollution. This could include furnaces which require prior notification to local authorities; or extraction systems (including chimneys) which require approval under pollution control legislation or biomass boilers or biomass-fuelled CHP plant; centralised boilers or CHP plant burning other fuels within or close to an air quality management area or introduce relevant combustion within a Smoke Control Area.*
>
> *Expose people to existing sources of air pollutants. This could be by building new homes, workplaces or other development in places with poor air quality.*
>
> *Give rise to potentially significant impact (such as dust) during construction for nearby sensitive locations.'*

Local Policy

Reigate and Banstead Borough Council (RBBC) adopted the Core Strategy in July 2014 which outlines the Council's broad planning strategy for the next 15 years. Following a review of policies within the existing Core Strategy the following was identified as being relevant to the proposed development from an air quality perspective:

Policy CS10: Sustainable Development

Development will:

1. Make efficient use of land, giving priority to previously developed land and buildings within the builtup areas.

2. Be at an appropriate density, taking account of and respecting the character of the local area and levels of accessibility and services.

3. Contribute to the creation of neighbourhoods which are supported by effective services, infrastructure and transport options and which are designed to be safe, secure and socially inclusive.

4. Protect and enhance the green fabric, and respect and contribute to the borough's green infrastructure network.

5. Respect the ecological and cultural heritage of the borough including the historic environment.

6. Minimise the need to travel, whilst increasing opportunities to walk, cycle or use public transport, including as part of the green infrastructure network.

7. Minimise the use of natural resources and contribute to a reduction in carbon emissions by re-using existing resources, maximising energy efficiency, minimising water use, and reducing the production of waste, including through sustainable construction methods. Encourage renewable energy/fuel production whilst ensuring that adverse impacts are addressed, including on landscape, wildlife, heritage assets and amenity.

8. Be designed to minimise pollution, including air, noise and light, and to safeguard water quality.

9. Be designed reflecting the need to adapt to the impacts of climate change (for example higher temperatures, increased flooding, increased pressure on water resources, impacts on ecology and built heritage and impacts on ground conditions).

10. Be located to minimise flood risk, through the application of the Sequential Test and where necessary the Exception Test, taking account of all sources of flooding including fluvial, surface water, sewer and

pluvial flooding, and reservoir failure, and manage flood risk through the use of SuDS and flood resistant/resilient design features, and where necessary provide floodplain compensation.

The criteria within this policy, along with policy CS6, will guide the allocation of sites through the DMP.

3. Assessment Methodology

The potential environmental effects of the operational phase of the proposed development are identified, in so far as current knowledge of the site and development allows. The significance of potential environmental effects is assessed according to the latest guidance produced by EPUK and IAQM in May 2015.

The methodology used to determine the potential air quality effects of the construction phase of the proposed development has been derived from the IAQM 'Guidance on the Assessment of the Impacts of Dust from Demolition and Construction' document and is summarised in Section 5.

3.1 Determining Significance of the Air Quality Effects

The significance of the effects during the operational phase of the development is based on the latest guidance produced by EPUK and IAQM in May 2015. The guidance provides a basis for a consistent approach that could be used by all parties associated with the planning process to professionally judge the overall significance of the air quality effects based on severity of air quality impacts.

The following rationale is used in determining the severity of the air quality effects at individual receptors:

1. The change in concentration of air pollutants, air quality effects, are quantified and evaluated in the context of AQOs. The effects are provided as a percentage of the Air Quality Assessment Level (AQAL), which may be an AQO, EU limit or target value, or an Environment Agency 'Environmental Assessment Level (EAL)';
2. The absolute concentrations are also considered in terms of the AQAL and are divided into categories for long term concentration. The categories are based on the sensitivity of the individual receptor in terms of harm potential. The degree of harm potential to change increases as absolute concentrations are close to or above the AQAL;
3. Severity of the effect is described as qualitative descriptors; negligible, slight, moderate or substantial, by taking into account in combination the harm potential and air quality effect. This means that a small increase at a receptor which is already close to or above the AQAL will have higher severity compared to a relatively large change at a receptor which is significantly below the AQAL;
4. The effects can be adverse when air quality concentration increase or beneficial when concentration decrease as a result of development;
5. The judgement of overall significance of the effects is then based on severity of effects on all the individual receptors considered; and,

6. Where a development is not resulting in any change in emissions itself, the significance of effect is based on the effect of surrounding sources on new residents or users of the development, i.e., will they be exposed to levels above the AQAL.

Table 2 Significance of Effects Matrix

Long term average concentration at receptor in assessment year	% Change in concentration relative to AQAL			
	1	2-5	6-10	>10
≤75% of AQAL	Negligible	Negligible	Slight	Moderate
76-94% of AQAL	Negligible	Slight	Moderate	Moderate
95-102% of AQAL	Slight	Moderate	Moderate	Substantial
103-109 of AQAL	Moderate	Moderate	Substantial	Substantial
≥110 of AQAL	Moderate	Substantial	Substantial	Substantial

4. Baseline Conditions

4.1 Air Quality Review

This section provides a review of the existing air quality in the vicinity of the proposed development site in order to provide a benchmark against which to assess potential air quality impacts of the proposed development. Baseline air quality in the vicinity of the proposed development site has been defined from a number of sources, as described in the following sections.

Local Air Quality Management (LAQM)

As required under section 82 of the Environment Act 1995, Reigate and Banstead Borough Council (RBBC) has conducted an ongoing exercise to review and assess air quality within its area of jurisdiction. The assessments have indicated that concentrations of NO_2 and PM_{10} are above the relevant AQOs at a number of locations of relevant public exposure within the Borough. RBBC have designated eleven Air Quality Management Areas (AQMAs):

- AQMA No.3 (Horley): An area of the south-west quadrant of Horley near to Gatwick Airport.
- AQMA No.1 M25: The length of the M25 near Walton to a distance of 30m either side of the carriageway, between Junction 7 and the point to the west of Junction 8 where the motorway meets the borough boundary.
- AQMA No.4: An area encompassing Taisboro House, 30 London Road, Reigate at the south east corner of the junction of the A217 and Rushworth Road.
- AQMA No.5: An area encompassing the dwelling house at 1 Dean Lane, Hooley in the south east corner of the Junction of the A23 and Dean Lane.
- AQMA No.6: An area encompassing the house "Highlands" near the junction of the A217 Brighton Road with Margery Land and Blackhorse Lane.
- AQMA No.8: An area encompassing a couple of residential properties immediately to the north of the junction of the A240 (Reigate Road) and A2022 (Fir Tree Road).
- AQMA No.9: An area encompassing Reigate High Street, the section of Church Street between the High Street and Bancroft Road, properties with a frontage to Bell Street (between the High Street and the southern end of Bancroft Road) and land and properties within 15m of either side of West Street (between High St and Evesham Rd) and along London Road (between West St and Castlefield Rd).
- AQMA No.10: An area encompassing all properties facing on to part of the A23 in Merstham. The area commences on London Road South (south of the junction with School Hill) and extends north along Merstham High Street and then just to the north of the junction with Station Road North.

- AQMA No.11: Properties within the area of Reigate Hill covering either partially or entirely properties between the level crossing in Reigate Town and J8 of the M25 within the Borough of Reigate and Banstead.
- AQMA No.12: Properties within the Redhill area covering either partially or entirely Cromwell Road, Queensway, A25 Redstone Hill between the junction with the A23 and the junction with Hillfield Road, A23 between the junction of Hooley Lane and Mill St and the A23 junction with Gloucester Road within Reigate and Banstead.
- Hooley Air Quality Management Area: Properties within the Hooley area covering either partially or entirely properties of the following roads, A23 Brighton Road, Star Lane and Church Lane

The proposed development is situated partially within AQMA No.12, and as such has been taken into consideration in this assessment.

Air Quality Monitoring

Monitoring of air quality within RBBC is undertaken through non - continuous monitoring methods. These have been reviewed in order to provide an indication of existing air quality in the area surrounding the proposed development site.

Non - Continuous Monitoring

RBBC operates a network of diffusion tubes. NO_2 concentrations were monitored at 8 locations in 2011. The closest diffusion tube is located approximately 120 metres west from the site boundary.

The representative diffusion tube data is from 2011 which is presented in Table 3.

Table 3 Monitored Annual Mean NO_2 Concentrations

Site ID	X	Y	Location	Site Type	NO_2 Annual Mean Concentration 2011 ($\mu g/m^3$)
RB17	528511	149715	11 Sylvan Way, Redhill	Roadside	16.5
RB120	528196	150421	21 Redstone Hill, Redhill	Roadside	33.7
RB121	528092	150786	Opposite Ladbrook Grove, Redhill	Roadside	37.1
RB122	528013	150475	Marketfield Way, Redhill	Roadside	34.6
RB123	527839	150474	Outside Age Concern, Cromwell Road, Redhill	Roadside	37.1
RB140	528122	150799	45 Ladbrook Grove, Redhill	Roadside	26.5
RB141	527373	150596	105 Station Road, Redhill	Roadside	25.3
RB145	527852	150158	33 Brighton Road, Redhill	Roadside	35.0

As indicated in Table 3, all roadside measured concentrations were below the relevant AQO. Diffusion tubes RB120 to RB 141 lie within the extents of the main study area and as such have been utilised for model verification.

4.2 Meteorology

Meteorological conditions have significant influence over air pollutant concentrations and dispersion. Pollutant levels can vary significantly from hour to hour as well as day to day, thus any air quality predictions need to be based on detailed meteorological data. The ADMS model calculates the dispersion of pollutants on an hourly basis using a year of local meteorological data. The 2011 meteorological data used in the assessment is derived from Gatwick Airport Meteorological Station. This is the nearest meteorological station which is considered representative of the development site, with all the complete parameters necessary for the ADMS model. Reference should be made to Figure 2 for an illustration of the prevalent wind conditions at the Gatwick Airport Meteorological Station site.

4.3 Emission Sources

A desktop assessment has identified that traffic movements are likely to be the most significant local source of pollutants affecting the site and its surroundings. The principal traffic derived pollutants likely to impact local receptors are NO_2 and PM_{10}.

The assessment has therefore modelled all roads within the immediate vicinity of the proposed development site which are considered likely to experience significant changes in traffic flow as a result of the proposed development. Reference should be made to Figure 1 for a graphical representation of the traffic data utilised within the ADMS Roads 3.2 model.

It should be noted that the pollutant contribution of minor roads and rail sources that are not included within the dispersion model is considered to be accounted for via the use of background air quality levels.

4.4 Sensitive Receptors

Receptors that are considered as part of the air quality assessment are primarily those existing receptors that are situated along routes predicted to experience significant changes in traffic flow as a result of the proposed development. The locations of the proposed receptors that have been included in this assessment are listed in Appendix C.

The receptor locations are summarised in Table 4 and the spatial locations of all of the receptors are illustrated in Figure 1.

Table 4 Modelled Existing Sensitive Receptor Locations

Discrete Sensitive Receptor		UK NGR (m)	
		X	Y
R1	7a Brighton Road	527873	150225
R2	129 Brighton Road	527717	149815
R3	5a Redstone Hill	528206	150420
R4	6 Redstone Hill	528234	150231
R5	52 London Road	528045	151109
R6	143 London Road	528121	151839
R7	491 Queensway	527831	150640
R8	79 Station Road	527654	150626
R9	162 Station Road	527436	150569

4.5 Ecological Receptors

Air quality impacts associated with the proposed development have the potential to impact on receptors of ecological sensitivity within the vicinity of the site. The Conservation of Habitats and Species Regulations (2010) require competent authorities to review planning applications and consents that have the potential to impact on European designated sites (e.g. Special Protection Areas).

A study was undertaken to identify any statutory designated sites of ecological or nature conservation importance within the extents of the dispersion modelling assessment. This was completed using the Multi-Agency Geographic Information for the Countryside (MAGIC) web-based interactive mapping service, which draws together information on key environmental schemes and designations. Following a search within a 1km radius of the site boundary, no sites were identified. As such, ecological receptors have not been considered further within this assessment.

5. Assessment of Air Quality Impacts - Construction Phase

5.1 Pollutant Sources

Other than negligible emissions from construction vehicles and equipment, the main emissions during construction are likely to be dust and particulate matter generated during earth moving (particularly during dry months), or from construction materials. The main potential effects of dust and particulate matter are:

- Visual - dust plume, reduced visibility, coating and soiling of surfaces leading to annoyance, loss of amenity, the need to clean surfaces;
- Physical and/or chemical contamination and corrosion of artefacts;
- Coating of vegetation and soil contamination; and,
- Health effects due to inhalation e.g. asthma or irritation of the eyes.

A number of other factors such as the amount of precipitation and other meteorological conditions will also greatly influence the amount of particulate matter generated.

Construction activities can give rise to short-term elevated dust/PM_{10} concentrations in neighbouring areas. This may arise from vehicle movements, soiling of the public highway, demolition or windblown stockpiles.

5.2 Particulate Matter (PM10)

The UK Air Quality Standards seek to control the health implications of respirable PM_{10}. However, the majority of particles released from construction will be greater than this in size.

Construction works on site have the potential to elevate localised PM_{10} concentrations in the area. On this basis, mitigation measures should still be taken to minimise these emissions as part of good site practice.

5.3 Dust

Particles greater than 10µm are likely to settle out relatively quickly and may cause annoyance due to their soiling capability. There are no formal standards or criteria for nuisance caused by deposited particles, however, a deposition rate of 200mg/m^2/day is often presented as a threshold for serious nuisance though this is usually only applied to long term exposure as people are generally more tolerant of dust for a short or defined period. Significant nuisance is likely when the dust coverage of surfaces is visible in contrast with adjacent clean areas, especially when it happens regularly. Severe dust nuisance occurs when the dust is perceptible without a clean reference surface.

Construction activities have the potential to suspend dust, which could result in annoyance of residents surrounding the site. Measures will be taken to minimise the emissions of dust as part of good site practice.

Recommended mitigation measures proportionate to the risk associated with the development and based on best practice guidance are discussed in the following sections.

5.4 Methodology

The construction phase assessment utilises the IAQM Guidance on the Assessment of Dust from Demolition and Construction document published in February 2014.

Four construction processes are considered; these are demolition, earthworks, construction and trackout. For each of these phases, the significance of the potential dust impacts is derived following the determination of a dust emission magnitude and the distance of activities to the nearest sensitive receptor, therefore assessing worst case impacts. A full explanation of the methodology is contained in Appendix A.

5.5 Assessment Results

Based on the methodology detailed in Appendix A, the scale of the anticipated works has determined the potential dust emission magnitude for each process, as presented in the Table 5 below.

Table 5 Dust Emission Magnitude

Construction Process	Dust Emission Magnitude
Demolition	Small
Earthworks	Medium
Construction	Medium
Trackout	Medium

The sensitivity of the surrounding area to each construction process has been determined following stage 2B of the IAQM guidance. The assessment has determined the area sensitivities as shown in the Table 6.

Table 6 Sensitivity of the Area

Source	Area Sensitivity		
	Dust Soiling	Health Effects of PM_{10}	Ecological
Demolition	Medium	Medium	N/A
Earthworks	Medium	Medium	N/A
Construction	Medium	Medium	N/A
Trackout	Medium	Low	N/A

The dust emission magnitude determined in Table 5 has been combined with the sensitivity of the area determined in Table 6, to determine the risk of impacts prior to the implementation of appropriate mitigation measures. The potential impact significance of dust emissions associated with the construction phase, without mitigation, is presented below.

Table 7 Impact Significance of Construction Activities without Mitigation

Source	Summary Risk of Impacts Prior to Mitigation		
	Dust Soiling	Health Effects of PM_{10}	Ecological
Demolition	Medium	Medium	N/A
Earthworks	Medium	Medium	N/A
Construction	Medium	Medium	N/A
Trackout	Low	Low	N/A

Appropriate mitigation measures are presented in Section 7. Following the adoption of these measures, the subsequent impact significance of the construction phase is not predicted to be significant.

6. Assessment of Air Quality Impacts - Operational Phase

In the context of the proposed development, transportation is identified as the dominant emission source that is likely to cause potential risk of exposure of air pollutants at receptors.

The operational phase assessment therefore consists of the quantified predictions of the change in NO_2 and PM_{10} for the operational phase of the development due to changes in traffic movement. Predictions of air quality at the site have been undertaken for the operational phase of the development using ADMS Roads.

In accordance with the provided traffic data, as contained within the supporting Traffic Assessment (TA), the operational phase assessment has been undertaken with an assumed operational opening year of 2017. The assessment scenarios are therefore:

- 2011 Baseline = (2014 Traffic) Existing baseline conditions;
- 2017 "Do Minimum" = Baseline conditions + committed development flows; and,
- 2017 "Do Something"= Baseline conditions + committed development flows + proposed development flows.

6.1 Existing and Predicted Traffic Flows

Baseline 2014 data and projected 2017 'do minimum' and 'do something' traffic data has been obtained for the operational phase assessment in the form of Annual Average Daily Traffic figures (AADT). Baseline traffic data was downloaded from the Department for Transport (DfT) website.

To gain traffic flows for the 'do minimum' scenario a TEMPRO factor of 1.0385 was provided by David Tucker Associates Transport Consultants then applied to the baseline flows.

To gain traffic flows for the 'do something' scenario the number of additional vehicles that will be introduced due to the development was calculated from the Transport Assessment. The transport assessment and Tempro factor were supplied by David Tucker Associates Transport Planning Consultants.

Emission factors for the 2011 baseline and 2017 projected 'do minimum' and 'do something' scenarios have been calculated using the Emission Factor Toolkit Version 6.0.2 (November 2014).

For the purposes of the air quality assessment, only roads predicted to experience significant changes in flows have been included in the air quality model. These represent the primary access routes to the proposed development site. Where unavailable, traffic speeds have been estimated based on site observations and national speed limits.

A 50m 20km/hr slow down phase is included on each link at every junction and roundabout within the assessment. All of the roads within the dispersion model are illustrated in Figure 1. Detailed traffic figures are provided in the Table 8.

Table 8 Traffic Data

Link	Speed (km/h)	2014		2017			
		AADT	HGV %	No Development		With Development	
				AADT	%HGV	AADT	%HGV
Redstone Hill	48	13278	3.01	13789	3.01	14775	3.01
Brighton Road	48	21927	2.11	22771	2.11	23757	2.11
Marketfield Road	48	22016	2.16	22864	2.16	23850	2.16
Cromwell Road	48	8333	2.15	8654	2.15	9640	2.15
Queens Way	48	5412	2.57	5620	2.57	6606	2.57
Princess Way	48	30883	1.69	32072	1.69	33058	1.69
Hatchlands Road	48	15382	2.17	15974	2.17	16960	2.17
London Road	48	15782	2.42	16390	2.42	17376	2.42
M25	112	165611	8.58	171987	8.58	172973	8.58

6.2 Background Concentrations

The use of background concentrations within the modelling process ensures that pollutant sources other than traffic are represented appropriately. Background sources of pollutants include industrial, domestic and rail emissions within the vicinity of the study site.

Background concentrations as used within the prediction calculations were referenced from the UK National Air Quality Information Archive database based on the National Grid Co-ordinates of 1 x 1 km grid squares nearest to the development site. In June 2014, DEFRA issued revised 2011 based background maps for nitrogen oxide (NO_X), NO_2, PM_{10} and $PM_{2.5}$ which incorporate updates to the input data used for modelling. 2011 background maps have been utilised throughout the assessment to provide a conservative assessment. The updated mapped background concentrations used in the assessment are summarised in Table 9.

Table 9 Published Background Air Quality Levels (µg/m^3)

UK NGR(m)		2011		
X	Y	NO_2	NO_x	PM_{10}
527500	150500	19.32	27.68	18.55
528500	150500	18.45	26.26	18.36
527500	151500	16.88	23.67	17.96
528500	151500	19.07	27.32	19.13

6.3 Model Verification

Model verification involves the comparison of modelled data to monitored data in order to gain the best possible representation of current pollutant concentrations for the assessment years. The verification

process is in general accordance with that contained in Annex 3 of the TG(09) guidance note and uses the most recently available diffusion tube monitoring data to best represent this.

The verification process consists of using the monitoring data and the published background air quality data in the UK National Air Quality Information Archive to calculate the road traffic contribution of NO_X at the monitoring locations. Outputs from the ADMS Roads model are provided as predicted road traffic contribution NO_X emissions. These are converted into predicted roadside contribution NO_2 exposure at the relevant receptor locations based on the updated approach to deriving NO_2 from NO_X for road traffic sources published in paragraphs 2.22 to 2.27 of Local Air Quality Management TG(09). The calculation was derived using the NO_X to NO_2 worksheet in the online LAQM tools website hosted by DEFRA.

A model correction of 1.39 was applied to roadside predicted NO_X concentrations before converting to NO_2. This figure demonstrates that the model predictions were in line with the road traffic emissions at the monitoring locations, likely due to the effects of congestion and stop-start driving behaviour in the study area and the effects of increased tailpipe emissions as traffic accelerates away from the roundabouts and junctions. Table 10 summarises the final model/monitored data correlation following the application of the relevant adjustment factor.

Table 10 Comparison of Roadside Modelling & Monitoring Results for NO_2

Tube location	NO_2 µg/m^3		
	Monitored NO_2	Modelled NO_2	Difference (%)
RB120	33.70	32.63	3.19
RB121	37.05	41.86	-12.99
RB122	34.63	32.45	6.28
RB123	37.13	33.62	9.45
RB140	26.50	28.66	-8.16
RB141	25.25	24.01	4.92
RB145	34.99	32.48	7.18

The final model produced data at the monitoring locations to within 25% of the monitoring results, as recommended within TG(09).

The final verification model correlation coefficient (representing the model uncertainty) is 1.010. The 'ideal value' correlation coefficient recommended in Box A3.7 of TG(09) is 1.00. The model is therefore considered to be verified and suitably representative of local emissions and exposures.

6.4 Summary of Model Inputs

Table 11 Summary of ADMS Roads Model Inputs

Parameter	Description	Input Value
Chemistry	A facility within ADMS-Roads to calculate the chemical reactions in the atmosphere between Nitric Oxide (NO), NO_2, Ozone (O_3) and Volatile organic compounds (VOCs).	No atmospheric chemistry parameters included
Meteorology	Representative meteorological data from a local source	**Gatwick Airport**, hourly sequential data
Surface Roughness	A setting to define the surface roughness of the model area based upon its location.	**1m** representing a typical surface roughness for Cities and Woodlands.
Latitude	Allows the location of the model area to be set	United Kingdom = **51.22**
Monin-Obukhov Length	This allows a measure of the stability of the atmosphere within the model area to be specified depending upon its character.	Cities and Large Towns = **30m.**
Elevation of Road	Allows the height of the road link above ground level to be specified.	All road links were set at ground level = **0m**.
Road Width	Allows the width of the road link to be specified.	Road width used depended on data obtained from OS map data for the specific road link
Topography	This enables complex terrain data to be included within the model in order to account for turbulence and plume spread effects of topography	No topographical information used
Time Varied Emissions	This enables daily, weekly or monthly variations in emissions to be applied to road sources	No time varied emissions used
Road Type	Allows the effect of different types of roads to be assessed.	**Urban (Not London)** settings were used for the relevant links
Road Speeds	Enables individual road speeds to be added for each road link	Based on national speed limits
Canyon Height	Allows the model to take account turbulent flow patterns occurring inside a street with relatively tall buildings on both sides, known as a "street canyon".	No canyons used within the model
Road Source Emissions	Road source emission rates are calculated from traffic flow data using the in-built EfT database of traffic emission factors.	The **EFT** Version **6.0.2 (2014)** dataset was used.
Year	Predicted EfT emissions rates depend on the year of emission.	**2011** data for verification and baseline operational phase assessment **2011 and 2017** data for the operational phase assessment.

6.5 ADMS Modelling Results

Traffic Assessment

The ADMS Model has predicted concentrations of NO_2 and PM_{10} at relevant receptor locations adjacent to roads likely to be effected by the development, as summarised in the following tables. Only receptors close to roads where there is predicted to be a change in emissions have been assessed.

Assessment Scenarios:

For the operational year of 2017, assessment of the effects of emissions from the proposed traffic associated with the scheme, has been undertaken using the Department for Transport (DfT) 2017 emissions rates which take into account of the rate of reduction in emission from road vehicles into the future with the following factors

- 2011 Baseline using 2014 Traffic.
- 2017 'Do Minimum' Scenario = Baseline + committed development (**using 2017 traffic emission factors**);
- 2017 'Do Something' Scenario = Baseline + committed development + Proposed development (**using 2017 traffic emission factors**)

An additional 'Sussex style' scenario has also been undertaken using emission factors from 2011 for the 'do minimum' and 'do something' based on a recent appeal decision that favoured the uncertainty of emissions forecasts. It should be noted that this is a theoretical scenario which assumes that the government (Defra) predictions for reduction in emissions over the forthcoming years will not occur. However, this should be not be considered as a 'more correct' scenario in accordance with the 2010 note [http://laqm.defra.gov.uk/laqm-faqs/faq5.html] which confirms that: *'There is no evidence to suggest that background concentrations associated with the other (non-traffic) source contributions should not behave as forecast. This disparity in the historical data highlights the uncertainty of future year projections of both NO_x and NO_2, but at this stage there is no robust evidence upon which to base any revised road traffic emissions projections'*.

- 2017 'Do Minimum' Sussex Scenario = Baseline + committed development (**using 2011 traffic emission factors**);
- 2017 'Do Something' Sussex Scenario = Baseline + committed development + Proposed development (**using 2011 traffic emission factors**);

Nitrogen Dioxide

Table 12 presents a summary of the predicted change in NO_2 concentrations at relevant receptor locations, due to changes in traffic flow associated with the development, based on modelled 'do minimum' and 'do something' scenarios. Results for the proposed receptors are included within Appendix C.

Table 12 Predicted Annual Average Concentrations of NO_2 at Receptor Locations

Receptor		NO_2 (µg/m^3)			
		Baseline 2011	No development 2017	With development 2017	Development Contribution
R1	7a Brighton Road	29.46	27.49	27.84	0.34
R2	129 Brighton Road	25.35	23.57	23.85	0.28
R3	5a Redstone Hill	27.14	25.20	25.63	0.43
R4	6 Redstone Hill	27.37	25.32	25.78	0.46
R5	52 London Road	26.97	25.34	25.68	0.34
R6	143 London Road	24.12	22.99	23.19	0.20
R7	491 Queensway	24.22	23.25	23.73	0.49
R8	79 Station Road	23.33	22.48	22.92	0.43
R9	162 Station Road	23.09	22.34	22.69	0.35
Annual Mean AQO not to be exceeded		**40 µg/m^3**			

All modelled existing receptors are predicted to meet the AQO for NO_2 in both the 'do minimum' and 'do something' scenarios.

As indicated in Table 12, the maximum predicted increase in the annual average exposure to NO_2 at any existing receptor, due to changes in traffic movements associated with the development, is 0.49µg/m^3 at 491 Queensway (R7).

The worst affected proposed receptor is 26.24µg/m^3 at first floor level at PR3. This is well below the National AQO of 40µg/m^3 for NO_2.

The significance of changes in traffic flow associated with the development with respect to annual mean NO_2 exposure has been assessed with reference to the criteria in Section 3. The outcomes of the assessment are summarised in Table 13.

Table 13 Significance of Effects at Key Receptors (NO_2)

NO_2 Significance Effects at Key Receptors				
Receptor	**Change Due to Development (DS-DM) (µg/m³)**	**% Change in Concentration Relative to AQAL**	**% Annual Mean Concentration in Assessment Year**	**Significance**
R1	0.34	1%	<75% of AQAL	Negligible
R2	0.28	1%	<75% of AQAL	Negligible
R3	0.43	1%	<75% of AQAL	Negligible
R4	0.46	1%	<75% of AQAL	Negligible
R5	0.34	1%	<75% of AQAL	Negligible
R6	0.20	1%	<75% of AQAL	Negligible
R7	0.49	1%	<75% of AQAL	Negligible
R8	0.43	1%	<75% of AQAL	Negligible
R9	0.35	1%	<75% of AQAL	Negligible
0% means a change of <0.5%				

The magnitude of the effects of changes in traffic flow as a result of the proposed development, with respect to NO_2 exposure for existing residential receptors including those within the AQMA, is determined to be 'imperceptible'. The significance is determined to be 'negligible', based on the methodology outlined in section 3. Given the quantitative nature of the assessment and the verification of the air quality dispersion model, the confidence of the assessment is deemed to be 'high'.

Particulate Matter

Table 14 presents a summary of the predicted change in annual mean PM_{10} concentrations at relevant receptor locations, due to changes in traffic flow associated with the development, based on modelled 'no development' and 'with development' scenarios. Results for the proposed receptors are included within Appendix C.

Table 14 Predicted Annual Average Concentrations of PM_{10} at Receptor Locations

Receptor		PM_{10} (µg/m3)			
		Baseline 2011	No development 2017	With development 2017	Development Contribution (DS-DM)
R1	7a Brighton Road	20.46	20.22	20.30	0.07
R2	129 Brighton Road	19.38	19.17	19.23	0.06
R3	5a Redstone Hill	19.90	19.70	19.79	0.09
R4	6 Redstone Hill	19.96	19.75	19.84	0.10
R5	52 London Road	20.55	20.36	20.43	0.07
R6	143 London Road	20.01	19.89	19.93	0.04
R7	491 Queensway	19.34	19.21	19.30	0.09
R8	79 Station Road	19.21	19.11	19.19	0.08
R9	162 Station Road	19.12	19.02	19.08	0.06
Annual Mean AQO not to be exceeded		**40 µg/m³**			

As indicated in Table 14, the maximum predicted increase in the annual average exposure to PM_{10} at any existing receptors, due to changes in traffic movements associated with the development, is 0.10µg/m3 at 6 Redstone Hill (R4).

The worst affected proposed receptor is 19.79µg/m^3 at first floor level at PR3. This is well below the National AQO of 40µg/m^3 for PM_{10}.

All modelled receptor locations are predicted to meet the AQO for PM_{10} in both the 'do minimum' and 'do something' scenarios.

The significance of changes in traffic flow associated with the development with respect to annual mean PM_{10} exposure has been assessed with reference to the criteria in section 3. The outcomes of the assessment are summarised in Table 15.

Table 15 Significance of Effects at Key Receptors (Particulate Matter)

PM_{10} Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-Dm) (µg/m³)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
R1	0.07	0%	<75% of AQAL	Negligible
R2	0.06	0%	<75% of AQAL	Negligible
R3	0.09	0%	<75% of AQAL	Negligible
R4	0.10	0%	<75% of AQAL	Negligible
R5	0.07	0%	<75% of AQAL	Negligible
R6	0.04	0%	<75% of AQAL	Negligible
R7	0.09	0%	<75% of AQAL	Negligible
R8	0.08	0%	<75% of AQAL	Negligible
R9	0.06	0%	<75% of AQAL	Negligible
0% means a change of <0.5%				

The magnitude of the effects of changes in traffic as a result of the proposed development, with respect to annual mean PM_{10} exposure, for existing residential including those within the AQMA, is determined to be 'imperceptible'. The significance has been determined to be 'negligible' based on the methodology outlined

in section 3. Given the quantitative nature of the assessment and the verification of the air quality dispersion model, the confidence of the assessment is deemed to be 'high'.

7. Mitigation

7.1 Construction Phase

The dust risk categories have been determined in Section 5 for each of the four construction activities. The assessment has determined that the potential impact significance of dust emissions associated with the construction phase of the proposed development is 'medium risk' at the worst affected receptors.

Using the methodology described in Appendix A, appropriate site specific mitigation measures associated with the determined level of risk can be found in Section 8.2 of the IAQM Guidance on the Assessment of Dust from Demolition and Construction. The mitigation measures have been divided into general measures applicable to all sites and measures applicable specifically to demolition, earthworks, construction and trackout. They are categorised into 'highly recommended' and 'desirable' measures. In the absence of appropriate regional guidance, to ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable

The mitigation measures for the proposed development are detailed in Table 16 and Table 17 below:

Table 16 Highly Recommended Construction Phase Mitigation Measures

Communications
Develop and implement a stakeholder communications plan that includes community engagement before work commences on site.
Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.
Display the head or regional office contact information
Dust Management
Develop and implement a Dust Management Plan (DMP), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk, and should include as a minimum the highly recommended measures in this document. The desirable measures should be included as appropriate for the site. In London additional measures may be required to ensure compliance with the Mayor of London's guidance. The DMP may include monitoring of dust deposition, dust flux, real time PM_{10} continuous monitoring and/or visual inspections.
Record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken.
Make the complaints log available to the local authority when asked.
Record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.
Hold regular liaison meetings with other high risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.
Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary.
Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked
Increase the frequency of site inspections by the person accountable for air quality and dust issues on site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions.
Agree dust deposition, dust flux, or real-time PM_{10} continuous monitoring locations with the Local Authority. Where possible commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.
Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible.
Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.
Fully enclose site or specific operations where there is a high potential for dust production and the site is actives for an extensive period

Avoid site runoff of water or mud.
Keep site fencing, barriers and scaffolding clean using wet methods.
Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.
Cover, seed or fence stockpiles to prevent wind whipping.
Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London NRMM standards, where applicable
Ensure all vehicles switch off engines when stationary - no idling vehicles.
Avoid the use of diesel or petrol powered generators and use mains electricity or battery powered equipment where practicable.
Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate)
Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.
Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)
Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems
Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
Use enclosed chutes and conveyors and covered skips
Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.
Ensure equipment is readily available on site to clean any dry spillages, and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods
Avoid bonfires and burning of waste materials.
Demolition
Ensure effective water suppression is used during demolition operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.
Avoid explosive blasting, using appropriate manual or mechanical alternatives.
Bag and remove any biological debris or damp down such material before demolition.
Earthworks
N/A
Construction
Ensure sand and other aggregates are stored in bunded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place.
Trackout
N/A

Table 17 Desirable Construction Phase Mitigation Measures

Communication
No action required
Dust Management
Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary.
Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on un-surfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate)
Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing)
Demolition
Soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust).
Earthworks
Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable

Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable.
Only remove the cover in small areas during work and not all at once
Construction
Avoid scabbling (roughening of concrete surfaces) if possible.
Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery.
For smaller supplies of fine power materials ensure bags are sealed after use and stored appropriately to prevent dust
Trackout
Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.
Avoid dry sweeping of large areas.
Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.
Record all inspections of haul routes and any subsequent action in a site log book.
Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

Following the implementation of the mitigation measures detailed in the tables above, the impact significance of the construction phase is not considered to be significant.

7.2 Operational Phase

Traffic

Although an assessment of road traffic exhaust emissions has predicted no exceedances of the AQO, implementing traffic management measures could result in fewer vehicle trips and therefore a reduction in associated vehicle emissions. This is likely to result in reductions of the mean roadside concentrations of traffic-related pollutant concentrations.

The following mitigation measures aim to increase the number of visitors and staff travelling to and from the site on foot, by cycle and/or by public transport. As such the number of trips to and from the site made by private car, and especially the single occupancy private car, will be reduced. The following measures are have been outlined in the Transport Assessment for the site:

- Integration of internal pedestrian and cycles routes into existing pedestrian and cycle infrastructure surrounding the application site;
- Implementation of a travel plan.

8. Conclusions

WYG have undertaken an Air Quality Assessment for proposed commercial and residential development on Marketfield Road, Redhill, Surrey in accordance with the methodology and parameters previously described within this report.

Prior to the implementation of appropriate mitigation measures, the potential impact significance of dust emissions associated with the construction phase of the proposed development has potential as 'medium' at some worst affected receptors without mitigation. However, appropriate site specific mitigation measures have been recommended based on Section 8.2 of the IAQM Guidance on the Assessment of Dust from Demolition, Earthworks, Construction and Trackout. It is anticipated that with these appropriate mitigation measures in place, the risk of adverse effects due to emissions from the construction phase will not be significant.

For the operational year of 2017, assessment of the effects of emissions from the proposed traffic associated with the scheme, has been undertaken under two scenarios:

- Scenario 1: Using the Department for Transport (DfT) 2017 emissions rates which take into account of the rate of reduction in emission from road vehicles into the future; and
- Scenario 2: Using the theoretical Sussex Style assessment with emission factors of the year of 2011 for the future 2017 'with and without' development scenarios. This scenario assumes no reduction in emissions rates from road vehicles from 2011 to 2017, this is included in Appendix B for the existing receptors and Appendix C for the proposed receptors.

For Scenario 1, the 2017 assessment of the effect of emissions from traffic associated with the scheme, has determined that the maximum predicted increase in the annual average exposure to NO_2 at any existing residential receptors is likely to 0.49 µg/m^3 at 491 Queensway (R7). For PM_{10}, the maximum predicted increase in the annual average exposure is likely to be 0.10µg/m^3 at 6 Redstone Hill (R4).

There are no predicted exceedances of the AQO for NO_2 or PM_{10} for any proposed receptor.

All modelled receptors of are predicted to meet the AQO for NO_2 and PM_{10} in the 'do minimum' and 'do something' scenarios operational year scenarios.

The assessment of the significance of the effects of the proposed development with respect to NO_2 exposure is determined to be 'negligible' for all receptors.

With respect to predicted PM_{10} exposure, the significance of the proposed development is determined to be 'negligible', based on assumptions detailed throughout the report.

For Scenario 2 using the Sussex Style 2011 emissions, the assessment has determined that the maximum predicted increase in the annual average exposure to NO_2 at any existing residential receptors is likely to be

0.63µg/m³ at 491 Queensway (R7). For PM_{10}, the maximum predicted increase in the annual average exposure is likely to be 0.12µg/m^3 at 6 Redstone Hill (R4).

All receptors are predicted to meet the AQO, in both the 'do minimum' and 'do something' scenario for both NO_2 and PM_{10}.

The assessment of the significance of the effects of the proposed development with respect to NO_2 exposure is determined to be 'negligible' for all other receptors.

With respect to predicted PM_{10} exposure, the significance of the proposed development is determined to be 'negligible', based on assumptions detailed throughout the report.

Following the adoption of the recommended mitigation measures, the development is not considered to be contrary to any of the national and local planning policies.

Figures

Figure 1 **Air Quality Assessment Area**

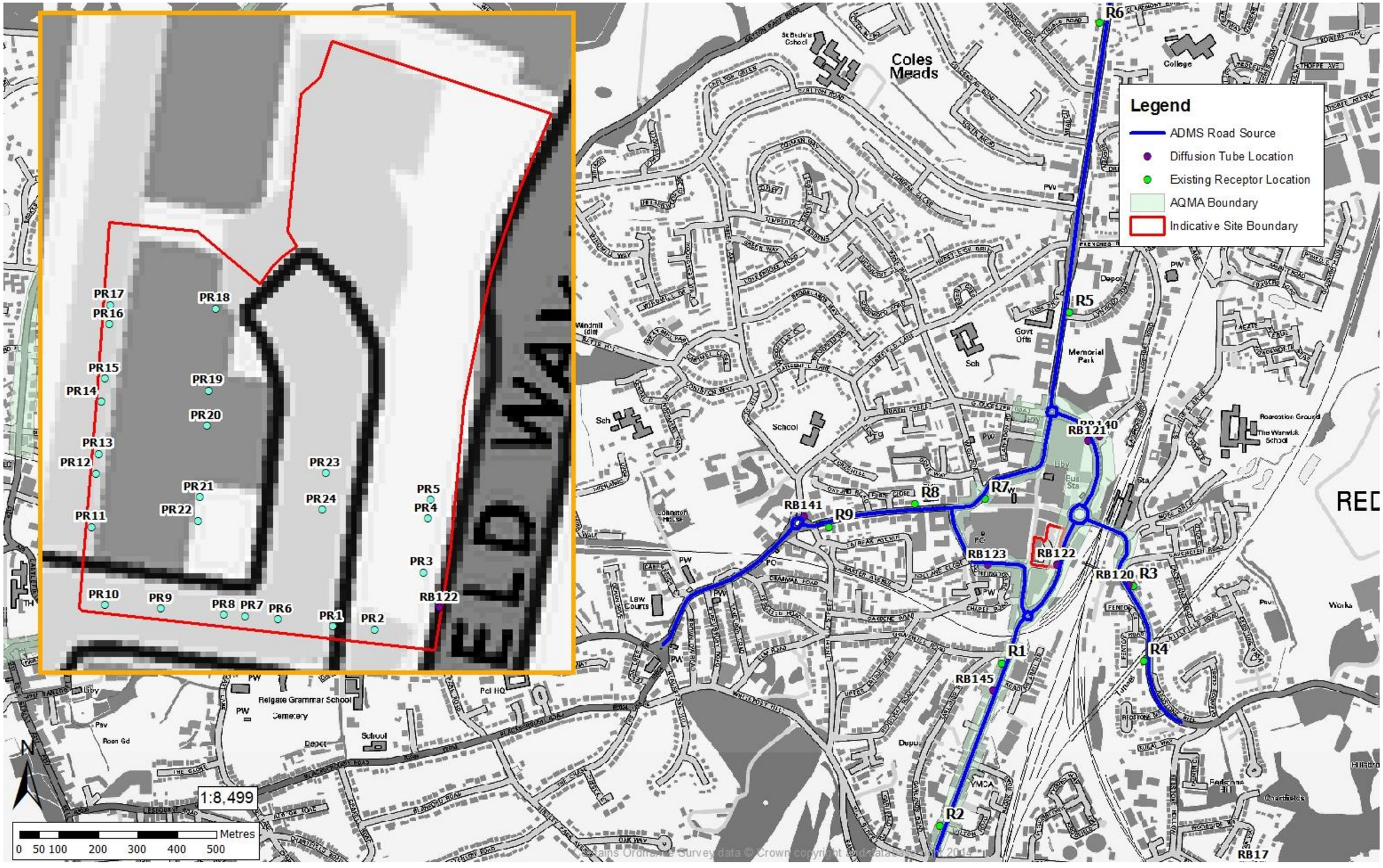


Figure 2 **Gatwick Heathrow 2011 Meteorological Station Wind Rose**

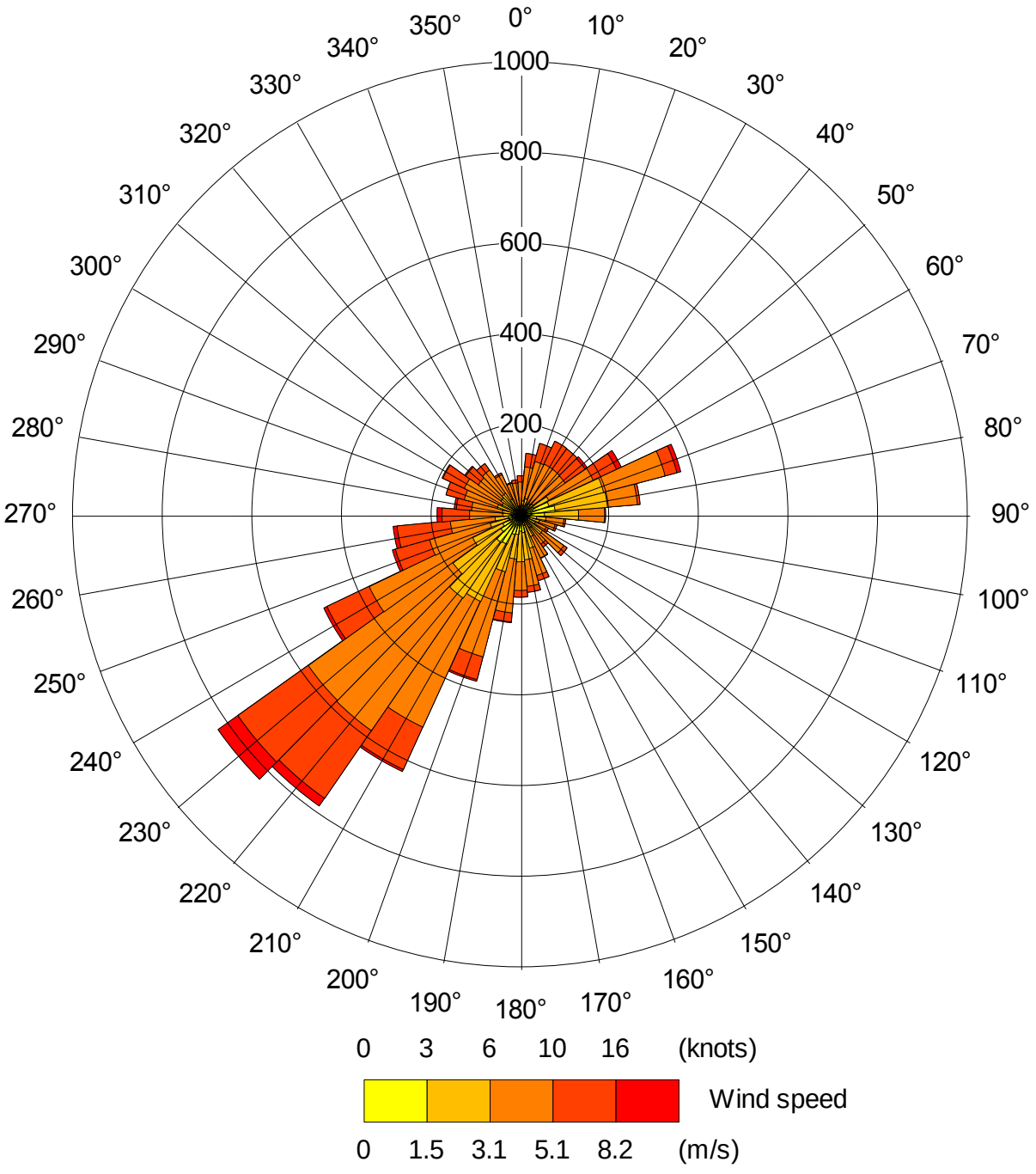
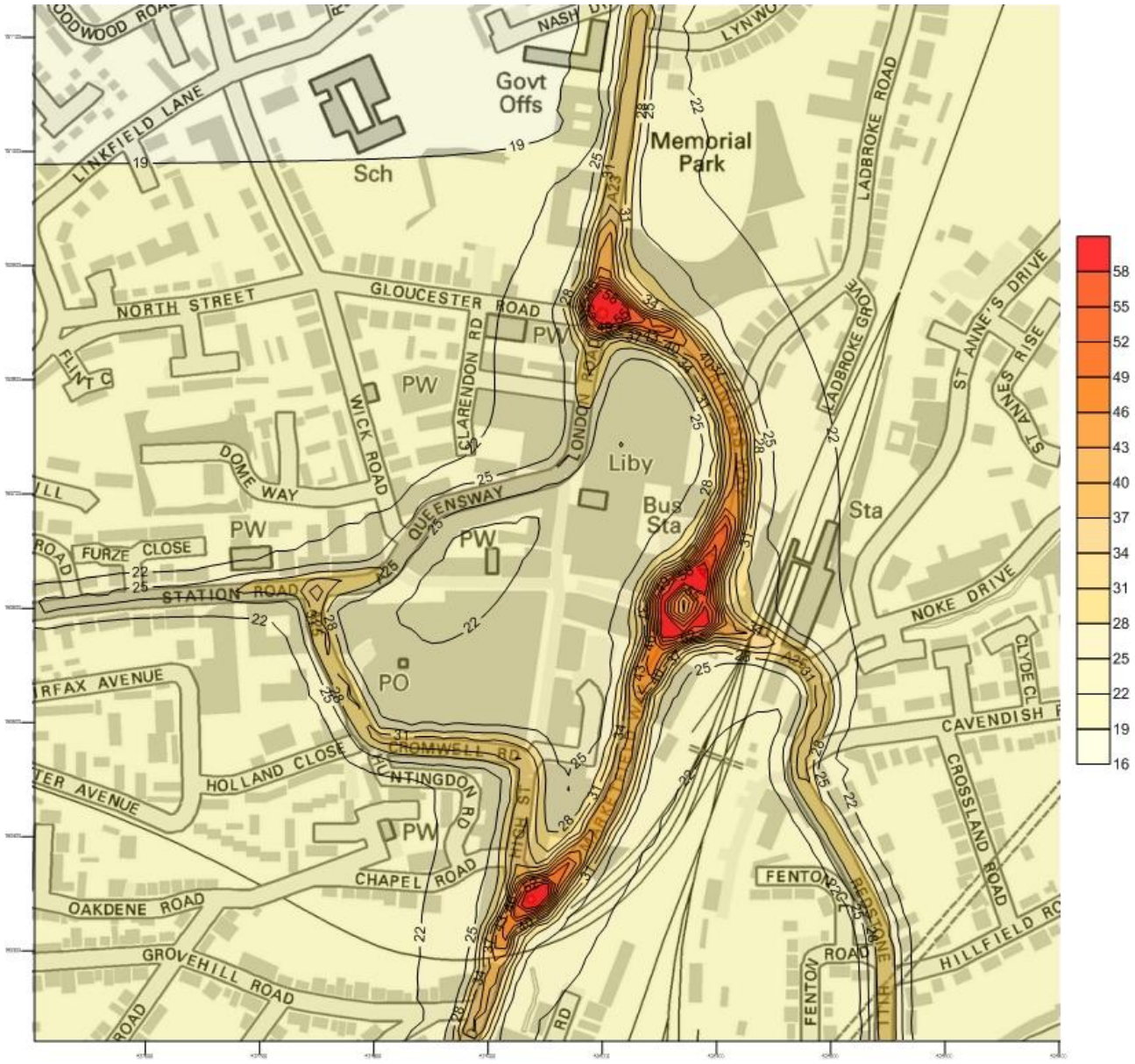


Figure 3: Predicted Environmental Concentration of NO_2 – Contour Map



Appendix A Construction Phase Assessment Methodology

The following information sets out the adopted approach to the construction phase impact assessment in accordance with the aforementioned IAQM guidance[1].

Step 1 – Screen the Requirement for a more Detailed Assessment

An assessment is required if there are sensitive receptors within 350m of the site boundary, within 50m of the route(s) used by construction vehicles on the surrounding road network, or within 500m from the site entrance. A detailed assessment is also required if there is an ecological receptor within 50m of the site boundary.

Step 2A – Define the Potential Dust Emission Magnitude

Demolition

The dust emission magnitude for the demolition phase has been determined based on the below criteria:

- *Large*: Total building volume >50 000m^3, potentially dusty construction (e.g. concrete), on-site crushing and screening, demolition activities >20m above ground level;
- *Medium*: Total building volume 20 000m^3 – 50 000m^3, potentially dusty construction material, demolition activities 10-20m above ground level; and,
- *Small*: Total building volume <20 000m^3, construction material with low potential for dust release (e.g. metal cladding or timber), demolition activities <10m above ground, demolition during wetter months.

Earthworks

The dust emission magnitude for the planned earthworks has been determined based on the below criteria:

- *Large:* Total site area >10 000m^2, potentially dusty soil type (e.g. clay, which will be prone to suspension when dry due to small particle size), > 10 heavy earth moving vehicles active at any one time, formation of bunds >8m in height, total material moved >100 000 tonnes;
- *Medium*: Total site area 2 500m^2 – 10 000m^2, moderately dusty soil type (e.g. silt), 5-10 heavy earth moving vehicles active at any one time, formation of bunds 4m-8m in height, total material moved 20 000 tonnes – 100 000 tonnes; and
- *Small:* Total site area <2 500 m^2, soil type with large grain size (e.g. sand), <5 heavy earth moving vehicles active at any one time, formation of bunds <4 m in height, total material moved <10 000 tonnes, earthworks during wetter months.

Construction

The dust emission magnitude for the construction phase has been determined based on the below criteria:

- *Large:* Total building volume >100 000m^3, on site concrete batching; sandblasting
- *Medium:* Total building volume 25 000m^3 – 100 000m^3, potentially dusty construction material (e.g. concrete), on site concrete batching; and,
- *Small:* Total building volume <25 000m^3, construction material with low potential for dust release (e.g. metal cladding or timber).

Trackout

The dust emission magnitude for trackout has been determined based on the below criteria:

- *Large:* >50 HGV (>3.5t) outward movements in any one day, potentially dusty surface material (e.g. high clay content), unpaved road length >100m;
- *Medium:* 10-50 HGV (>3.5t) outward movements in any one day, moderately dusty surface material (e.g. high clay content),

[1] Institute of Air Quality Management 2014. *Guidance on the Assessment of dust from demolition and construction.*

unpaved road length 50m – 100m; and,

- *Small:* <10 HGV (>3.5t) outward movements in any one day, surface material with low potential for dust release, unpaved road length <50m.

Step 2B - Defining the Sensitivity of the Area

Sensitivities of People to Dust Soiling Effects

- *High:*
  - Users can reasonably expect a enjoyment of a high level of amenity;
  - The appearance, aesthetics or value of their property would be diminished by soiling; and the people or property would reasonably expect to be present continuously, or at least regularly for extended periods, as part of the normal pattern of use of the land; and,
  - Indicative examples include dwellings, museums and other culturally important collections, medium and long term car parks and car showrooms.
- *Medium:*
  - Users can reasonably expect to enjoy a reasonable level of amenity, but would not reasonably expect to enjoy the same level of amenity as in their home;
  - The appearance, aesthetics or value of their property could be diminished by soiling;
  - The people or property wouldn't reasonably be expected to be present here continuously or regularly for extended periods as part of the normal pattern of use of the land; and,
  - Indicative examples include parks and places of work.
- *Low:*
  - The enjoyment of amenity would not reasonably be expected;
  - Property would not reasonably be expected to be diminished in appearance, aesthetics or value by soiling;
  - There is transient exposure, where the people or property would reasonably be expected to be present only for limited periods of time as part of the normal pattern of use of the land; and,
  - Indicative examples include playing fields, farmland (unless commercially-sensitive horticultural), footpaths, short term car parks and roads.

The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout, using the following table:

Table 19– Sensitivity of the Area to Dust Soiling Effects on People and Property

Receptor Sensitivity	Number of Receptors	Distance from the Source (m)			
		<20	<50	<100	<350
High	>100	High	High	Medium	Low
	10-100	High	Medium	Low	Low
	1-10	Medium	Low	Low	Low
Medium	>1	Medium	Low	Low	Low
Low	>1	Low	Low	Low	Low

Note - The likely routes the construction traffic will use should also be included to enable the presence of trackout receptors to be included in the assessment. As a general guidance, without site-specific mitigation, trackout may occur along the public highway up to 500 m from large sites (as defined in step 2A), 200 m from medium sites and 50 m from small sites, as measured from the site exit.

Sensitivities of People to the Health Effects of PM_{10}

- *High:*
  - Locations where members of the public are exposed over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day);
  - Indicative examples include residential properties. Hospitals, schools and residential care homes should also be considered as having equal sensitivity to residential areas for the purposes of this assessment.
- *Medium:*
  - Locations where the people exposed are workers, and exposure is over a time period relevant to the air quality objective for PM_{10} (in the case of the 24-hour objectives, a relevant location would be one where individuals may be exposed for eight hours or more in a day); and,
  - Indicative examples include office and shop workers, but will generally not include workers occupationally exposed to PM_{10}, as protection is covered by Health and Safety at Work legislation.
- *Low:*
  - Locations where human exposure is transient; and,
  - Indicative examples include public footpaths, playing fields, parks and shopping streets.

The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout, using the following table:

Table 20 - Sensitivity of the Area to Human Health Impacts

Receptor Sensitivity	Annual Mean PM_{10} Concentration	Number of Receptors	Distance from the Source (m)				
			<20	<50	<100	<200	<350
High	>32 ·g/m^3	>100	High	High	High	Medium	Low
		10-100	High	High	Medium	Low	Low
		1-10	High	Medium	Low	Low	Low
	28 - 32 ·g/m^3	>100	High	High	Medium	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	High	Medium	Low	Low	Low
	24 – 28 ·g/m^3	>100	High	Medium	Low	Low	Low
		10-100	High	Medium	Low	Low	Low
		1-10	Medium	Low	Low	Low	Low
	<24 ·g/m^3	>100	Medium	Low	Low	Low	Low
		10-100	Low	Low	Low	Low	Low
		1-10	Low	Low	Low	Low	Low
Medium	-	>10	High	Medium	Low	Low	Low
	-	1-10	Medium	Low	Low	Low	Low
Low	-	>1	Low	Low	Low	Low	Low

Note - The likely routes the construction traffic will use should also be included to enable the presence of trackout receptors to be included in the assessment. As a general guidance, without site-specific mitigation, trackout may occur along the public highway up to 500 m from large sites (as defined in step 2A), 200 m from medium sites and 50 m from small sites, as measured from the site exit.

Sensitivities of Receptors to Ecological Effects

- *High:*
  - Locations with an international or national designation and the designated features may be affected by dust soiling;
  - Locations where there is a community of a particularly dust sensitive species such as vascular species included in the Red Data List For Great Britain; and,
  - Indicative examples include a Special Area of Conservation (SAC) designated for acid heathlands or a local site designated

for lichens adjacent to the demolition of a large site containing concrete (alkali) buildings.

- *Medium:*
  - Locations where there is a particularly important plant species, where its dust sensitivity is uncertain or unknown;
  - Locations with a national designation where the features may be affected by dust deposition; and,
  - Indicative example is a Site of Special Scientific Interest (SSSI) with dust sensitive features.
- *Low:*
  - Locations with a local designation where the features may be affected by dust deposition; and,
  - Indicative example is a local Nature Reserve with dust sensitive features.

The sensitivity of the area should be derived for each of the four activities: demolition, construction, earthworks and trackout, using the following table:

Table 21 - Sensitivity of the Area to Ecological Impacts

Receptor Sensitivity	Distance from Source (m)	
	<20	<50
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Note - The likely routes the construction traffic will use should also be included to enable the presence of trackout receptors to be included in the assessment. As a general guidance, without site-specific mitigation, trackout may occur along the public highway up to 500 m from large sites (as defined in step 2A), 200 m from medium sites and 50 m from small sites, as measured from the site exit.

Step 2C - Defining the Risk of Impacts

The risk of impacts with no mitigation is determined by combining the dust emission magnitude determined in Step 2A and the sensitivity of the area determined in Step 2B.

The following tables provide a method of assigning the level of risk for each activity.

Demolition

Table 22 - Risk of Dust Impacts, Demolition

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Medium Risk
Medium	High Risk	Medium Risk	Low Risk
Low	Medium Risk	Low Risk	Negligible

Earthworks

Table 23 - Risk of Dust Impacts, Earthworks

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
Low	Low Risk	Low Risk	Negligible

Construction

Table 24 - Risk of Dust Impacts, Construction

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Medium Risk	Low Risk
Low	Low Risk	Low Risk	Negligible

Trackout

Table 25 - Risk of Dust Impacts, Trackout

Sensitivity of Area	Dust Emission Magnitude		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible
Low	Low Risk	Low Risk	Negligible

Step 3 – Site Specific Mitigation

The dust risk categories for each of the four activities determined in Step 2C should be used to define the appropriate, site-specific mitigation measures to be adopted.

These mitigation measures are contained within section 8.2 of the IAQM Guidance on the Assessment of Dust from Demolition and Construction.

Appendix B Theoretical 'Sussex' Scenario

Theoretical 'Sussex' Scenario

An additional 'Sussex style' scenario has also been undertaken using emission factors from 2011 for the 'do minimum' and 'do something'. It should be noted that this is a theoretical scenario which assumes that the government (Defra) predictions for reduction in emissions over the forthcoming years will not occur. However, this should be not be considered as a 'more correct' scenario in accordance with the 2010 note [http://laqm.defra.gov.uk/laqm-faqs/faq5.html] which confirms that: 'There is no evidence to suggest that background concentrations associated with the other (non-traffic) source contributions should not behave as forecast. This disparity in the historical data highlights the uncertainty of future year projections of both NO_x and NO_2, but at this stage there is no robust evidence upon which to base any revised road traffic emissions projections'.

Table B1 Predicted Change in NO_2 with Baseline Year Emissions Factor

Receptor		NO_2 (µg/m³)		
		No Development 2017	With Development 2017	Development Contribution
R1	7a Brighton Road	29.81	30.22	0.41
R2	129 Brighton Road	25.66	26.04	0.37
R3	5a Redstone Hill	27.45	28.02	0.57
R4	6 Redstone Hill	27.69	28.30	0.61
R5	52 London Road	27.27	27.71	0.44
R6	143 London Road	24.31	24.60	0.28
R7	491 Queensway	24.40	25.03	0.63
R8	79 Station Road	23.48	24.05	0.57
R9	162 Station Road	23.23	23.68	0.45
Annual Mean AQO not to be exceeded		**40 µg/m³**		

Table B2 Significance of Effects at Key Receptors (NO_2)

NO_2 Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m³)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
R1	0.41	1%	76-94% of AQAL	Negligible
R2	0.37	1%	<75% of AQAL	Negligible
R3	0.57	1%	<75% of AQAL	Negligible
R4	0.61	1%	<75% of AQAL	Negligible
R5	0.44	1%	<75% of AQAL	Negligible
R6	0.28	1%	<75% of AQAL	Negligible
R7	0.63	1%	<75% of AQAL	Negligible
R8	0.57	1%	<75% of AQAL	Negligible
R9	0.45	1%	<75% of AQAL	Negligible
0% means a change of <0.5%				

Table B3 Predicted Change in PM_{10} with Baseline Year Emissions Factor

Receptor	PM_{10} (µg/m³)

		No Development 2017	With Development 2017	Development Contribution
R1	7a Brighton Road	20.54	20.62	0.08
R2	129 Brighton Road	19.44	19.52	0.07
R3	5a Redstone Hill	19.96	20.07	0.11
R4	6 Redstone Hill	20.02	20.14	0.12
R5	52 London Road	20.61	20.69	0.09
R6	143 London Road	20.05	20.10	0.05
R7	491 Queensway	19.37	19.47	0.11
R8	79 Station Road	19.24	19.34	0.10
R9	162 Station Road	19.14	19.22	0.07
Annual Mean AQO not to be exceeded		**40 µg/m^3**		

Table B4 Significance of Effects at Key Receptors With Baseline Year Emissions (PM_{10})

PM_{10} Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m^3)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
R1	0.08	0%	<75% of AQAL	Negligible
R2	0.07	0%	<75% of AQAL	Negligible
R3	0.11	0%	<75% of AQAL	Negligible
R4	0.12	0%	<75% of AQAL	Negligible
R5	0.09	0%	<75% of AQAL	Negligible
R6	0.05	0%	<75% of AQAL	Negligible
R7	0.11	0%	<75% of AQAL	Negligible
R8	0.10	0%	<75% of AQAL	Negligible
R9	0.07	0%	<75% of AQAL	Negligible
0% means a change of <0.5%				

As expected, the resultant levels are higher with the baseline year's traffic emissions factor used, however there are still no exceedances of the AQO of 40µg/m^3

Appendix C Proposed Receptor Results and Theoretical Sussex Scenario for Proposed Receptors

Table C1 Modelled Sensitive Proposed Receptor Locations

Discrete Sensitive Receptor		UK NGR (m)	
		X	Y
PR1 (1)	Proposed Receptor (1st Floor)	527994	150472
PR2 (1)	Proposed Receptor (1st Floor)	528001	150471
PR3 (1)	Proposed Receptor (1st Floor)	528010	150481
PR4 (1)	Proposed Receptor (1st Floor)	528011	150491
PR5 (1)	Proposed Receptor (1st Floor)	528011	150494
PR1 (2)	Proposed Receptor (2nd Floor)	527994	150472
PR2 (2)	Proposed Receptor (2nd Floor)	528001	150471
PR3 (2)	Proposed Receptor (2nd Floor)	528010	150481
PR4 (2)	Proposed Receptor (2nd Floor)	528011	150491
PR5 (2)	Proposed Receptor (2nd Floor)	528011	150494
PR6 (2)	Proposed Receptor (2nd Floor)	527984	150473
PR7 (2)	Proposed Receptor (2nd Floor)	527978	150473
PR8 (2)	Proposed Receptor (2nd Floor)	527974	150474
PR9 (2)	Proposed Receptor (2nd Floor)	527963	150475
PR10 (2)	Proposed Receptor (2nd Floor)	527953	150475
PR11 (2)	Proposed Receptor (2nd Floor)	527951	150489
PR12 (2)	Proposed Receptor (2nd Floor)	527951	150499
PR13 (2)	Proposed Receptor (2nd Floor)	527952	150502
PR14 (2)	Proposed Receptor (2nd Floor)	527952	150512
PR15 (2)	Proposed Receptor (2nd Floor)	527953	150516
PR17 (2)	Proposed Receptor (2nd Floor)	527954	150529
PR18 (2)	Proposed Receptor (2nd Floor)	527973	150528
PR19 (2)	Proposed Receptor (2nd Floor)	527972	150514
PR20 (2)	Proposed Receptor (2nd Floor)	527971	150507
PR21 (2)	Proposed Receptor (2nd Floor)	527970	150495
PR22 (2)	Proposed Receptor (2nd Floor)	527970	150490
PR1 (3)	Proposed Receptor (3rd Floor)	527994	150472
PR2 (3)	Proposed Receptor (3rd Floor)	528001	150471
PR3 (3)	Proposed Receptor (3rd Floor)	528010	150481
PR4 (3)	Proposed Receptor (3rd Floor)	528011	150491
PR5 (3)	Proposed Receptor (3rd Floor)	528011	150494
PR6 (3)	Proposed Receptor (3rd Floor)	527984	150473
PR7 (3)	Proposed Receptor (3rd Floor)	527978	150473
PR8 (3)	Proposed Receptor (3rd Floor)	527974	150474
PR9 (3)	Proposed Receptor (3rd Floor)	527963	150475
PR10 (3)	Proposed Receptor (3rd Floor)	527953	150475
PR11 (3)	Proposed Receptor (3rd Floor)	527951	150489
PR12 (3)	Proposed Receptor (3rd Floor)	527951	150499
PR13 (3)	Proposed Receptor (3rd Floor)	527952	150502
PR14 (3)	Proposed Receptor (3rd Floor)	527952	150512
PR15 (3)	Proposed Receptor (3rd Floor)	527953	150516
PR16 (3)	Proposed Receptor (3rd Floor)	527954	150525
PR17 (3)	Proposed Receptor (3rd Floor)	527954	150529
PR18 (3)	Proposed Receptor (3rd Floor)	527973	150528
PR19 (3)	Proposed Receptor (3rd Floor)	527972	150514
PR20 (3)	Proposed Receptor (3rd Floor)	527971	150507
PR21 (3)	Proposed Receptor (3rd Floor)	527970	150495
PR22 (3)	Proposed Receptor (3rd Floor)	527970	150490
PR23 (3)	Proposed Receptor (3rd Floor)	527993	150499
PR24 (3)	Proposed Receptor (3rd Floor)	527992	150492
PR1 (4)	Proposed Receptor (4th Floor)	527994	150472

Discrete Sensitive Receptor		UK NGR (m)	
		X	Y
PR2 (4)	Proposed Receptor (4th Floor)	528001	150471
PR3 (4)	Proposed Receptor (4th Floor)	528010	150481
PR4 (4)	Proposed Receptor (4th Floor)	528011	150491
PR5 (4)	Proposed Receptor (4th Floor)	528011	150494
PR6 (4)	Proposed Receptor (4th Floor)	527984	150473
PR7 (4)	Proposed Receptor (4th Floor)	527978	150473
PR8 (4)	Proposed Receptor (4th Floor)	527974	150474
PR9 (4)	Proposed Receptor (4th Floor)	527963	150475
PR10 (4)	Proposed Receptor (4th Floor)	527953	150475
PR11 (4)	Proposed Receptor (4th Floor)	527951	150489
PR12 (4)	Proposed Receptor (4th Floor)	527951	150499
PR13 (4)	Proposed Receptor (4th Floor)	527952	150502
PR14 (4)	Proposed Receptor (4th Floor)	527952	150512
PR15 (4)	Proposed Receptor (4th Floor)	527953	150516
PR16 (4)	Proposed Receptor (4th Floor)	527954	150525
PR17 (4)	Proposed Receptor (4th Floor)	527954	150529
PR18 (4)	Proposed Receptor (4th Floor)	527973	150528
PR19 (4)	Proposed Receptor (4th Floor)	527972	150514
PR20 (4)	Proposed Receptor (4th Floor)	527971	150507
PR21 (4)	Proposed Receptor (4th Floor)	527970	150495
PR22 (4)	Proposed Receptor (4th Floor)	527970	150490
PR23 (4)	Proposed Receptor (4th Floor)	527993	150499
PR24 (4)	Proposed Receptor (4th Floor)	527992	150492
PR1 (5)	Proposed Receptor (5th Floor)	527994	150472
PR2 (5)	Proposed Receptor (5th Floor)	528001	150471
PR3 (5)	Proposed Receptor (5th Floor)	528010	150481
PR4 (5)	Proposed Receptor (5th Floor)	528011	150491
PR5 (5)	Proposed Receptor (5th Floor)	528011	150494
PR9 (5)	Proposed Receptor (5th Floor)	527963	150475
PR10 (5)	Proposed Receptor (5th Floor)	527953	150475
PR11 (5)	Proposed Receptor (5th Floor)	527951	150489
PR12 (5)	Proposed Receptor (5th Floor)	527951	150499
PR13 (5)	Proposed Receptor (5th Floor)	527952	150502
PR14 (5)	Proposed Receptor (5th Floor)	527952	150512
PR15 (5)	Proposed Receptor (5th Floor)	527953	150516
PR16 (5)	Proposed Receptor (5th Floor)	527954	150525
PR17 (5)	Proposed Receptor (5th Floor)	527954	150529
PR18 (5)	Proposed Receptor (5th Floor)	527973	150528
PR19 (5)	Proposed Receptor (5th Floor)	527972	150514
PR20 (5)	Proposed Receptor (5th Floor)	527971	150507
PR21 (5)	Proposed Receptor (5th Floor)	527970	150495
PR22 (5)	Proposed Receptor (5th Floor)	527970	150490
PR23 (5)	Proposed Receptor (5th Floor)	527993	150499
PR24 (5)	Proposed Receptor (5th Floor)	527992	150492
PR1 (6)	Proposed Receptor (6th Floor)	527994	150472
PR2 (6)	Proposed Receptor (6th Floor)	528001	150471
PR3 (6)	Proposed Receptor (6th Floor)	528010	150481
PR4 (6)	Proposed Receptor (6th Floor)	528011	150491
PR5 (6)	Proposed Receptor (6th Floor)	528011	150494
PR9 (6)	Proposed Receptor (6th Floor)	527963	150475
PR10 (6)	Proposed Receptor (6th Floor)	527953	150475
PR11 (6)	Proposed Receptor (6th Floor)	527951	150489
PR12 (6)	Proposed Receptor (6th Floor)	527951	150499

Discrete Sensitive Receptor		UK NGR (m)	
		X	Y
PR13 (6)	Proposed Receptor (6th Floor)	527952	150502
PR14 (6)	Proposed Receptor (6th Floor)	527952	150512
PR15 (6)	Proposed Receptor (6th Floor)	527953	150516
PR16 (6)	Proposed Receptor (6th Floor)	527954	150525
PR17 (6)	Proposed Receptor (6th Floor)	527954	150529
PR18 (6)	Proposed Receptor (6th Floor)	527973	150528
PR19 (6)	Proposed Receptor (6th Floor)	527972	150514
PR20 (6)	Proposed Receptor (6th Floor)	527971	150507
PR21 (6)	Proposed Receptor (6th Floor)	527970	150495
PR22 (6)	Proposed Receptor (6th Floor)	527970	150490
PR23 (6)	Proposed Receptor (6th Floor)	527993	150499
PR24 (6)	Proposed Receptor (6th Floor)	527992	150492
PR1 (7)	Proposed Receptor (7th Floor)	527994	150472
PR2 (7)	Proposed Receptor (7th Floor)	528001	150471
PR3 (7)	Proposed Receptor (7th Floor)	528010	150481
PR4 (7)	Proposed Receptor (7th Floor)	528011	150491
PR5 (7)	Proposed Receptor (7th Floor)	528011	150494
PR9 (7)	Proposed Receptor (7th Floor)	527963	150475
PR10 (7)	Proposed Receptor (7th Floor)	527953	150475
PR11 (7)	Proposed Receptor (7th Floor)	527951	150489
PR12 (7)	Proposed Receptor (7th Floor)	527951	150499
PR13 (7)	Proposed Receptor (7th Floor)	527952	150502
PR21 (7)	Proposed Receptor (7th Floor)	527970	150495
PR22 (7)	Proposed Receptor (7th Floor)	527970	150490
PR23 (7)	Proposed Receptor (7th Floor)	527993	150499
PR24 (7)	Proposed Receptor (7th Floor)	527992	150492
PR1 (8)	Proposed Receptor (8th Floor)	527994	150472
PR2 (8)	Proposed Receptor (8th Floor)	528001	150471
PR3 (8)	Proposed Receptor (8th Floor)	528010	150481
PR4 (8)	Proposed Receptor (8th Floor)	528011	150491
PR5 (8)	Proposed Receptor (8th Floor)	528011	150494
PR23 (8)	Proposed Receptor (8th Floor)	527993	150499
PR24 (8)	Proposed Receptor (8th Floor)	527992	150492
PR1 (9)	Proposed Receptor (9th Floor)	527994	150472
PR2 (9)	Proposed Receptor (9th Floor)	528001	150471
PR3 (9)	Proposed Receptor (9th Floor)	528010	150481
PR4 (9)	Proposed Receptor (9th Floor)	528011	150491
PR5 (9)	Proposed Receptor (9th Floor)	528011	150494
PR23 (9)	Proposed Receptor (9th Floor)	527993	150499
PR24 (9)	Proposed Receptor (9th Floor)	527992	150492
PR1 (10)	Proposed Receptor (10th Floor)	527994	150472
PR2 (10)	Proposed Receptor (10th Floor)	528001	150471
PR3 (10)	Proposed Receptor (10th Floor)	528010	150481
PR1 (11)	Proposed Receptor (11th Floor)	527994	150472
PR2 (11)	Proposed Receptor (11th Floor)	528001	150471
PR3 (11)	Proposed Receptor (11th Floor)	528010	150481

Table C2 Predicted Annual Average Concentrations of NO_2 at Proposed Receptor Locations

Receptor		NO_2 ($\mu g/m^3$)			
		Baseline 2011	No Development 2017	With Development 2017	Development Contribution
PR1 (1)	Proposed Receptor (1st Floor)	26.52	25.17	25.47	0.30
PR2 (1)	Proposed Receptor (1st Floor)	26.55	25.01	25.34	0.32
PR3 (1)	Proposed Receptor (1st Floor)	27.62	25.89	26.24	0.34
PR4 (1)	Proposed Receptor (1st Floor)	27.36	25.68	26.02	0.34
PR5 (1)	Proposed Receptor (1st Floor)	27.33	25.66	25.99	0.33
PR1 (2)	Proposed Receptor (2nd Floor)	25.57	24.40	24.66	0.26
PR2 (2)	Proposed Receptor (2nd Floor)	25.15	23.89	24.17	0.27
PR3 (2)	Proposed Receptor (2nd Floor)	25.52	24.19	24.47	0.28
PR4 (2)	Proposed Receptor (2nd Floor)	25.46	24.14	24.42	0.27
PR5 (2)	Proposed Receptor (2nd Floor)	25.46	24.14	24.43	0.28
PR6 (2)	Proposed Receptor (2nd Floor)	25.19	24.10	24.36	0.26
PR7 (2)	Proposed Receptor (2nd Floor)	25.04	23.98	24.25	0.27
PR8 (2)	Proposed Receptor (2nd Floor)	24.97	23.94	24.20	0.26
PR9 (2)	Proposed Receptor (2nd Floor)	24.89	23.89	24.17	0.28
PR10 (2)	Proposed Receptor (2nd Floor)	24.98	23.97	24.28	0.31
PR11 (2)	Proposed Receptor (2nd Floor)	24.65	23.70	24.00	0.29
PR12 (2)	Proposed Receptor (2nd Floor)	24.39	23.48	23.75	0.27
PR13 (2)	Proposed Receptor (2nd Floor)	24.30	23.41	23.68	0.27
PR14 (2)	Proposed Receptor (2nd Floor)	24.10	23.25	23.49	0.24
PR15 (2)	Proposed Receptor (2nd Floor)	24.02	23.19	23.42	0.23
PR17 (2)	Proposed Receptor (2nd Floor)	23.87	23.06	23.28	0.22
PR18 (2)	Proposed Receptor (2nd Floor)	23.82	23.02	23.24	0.22
PR19 (2)	Proposed Receptor (2nd Floor)	24.25	23.37	23.59	0.22
PR20 (2)	Proposed Receptor (2nd Floor)	24.37	23.47	23.70	0.23
PR21 (2)	Proposed Receptor (2nd Floor)	24.44	23.52	23.77	0.24
PR22 (2)	Proposed Receptor (2nd Floor)	24.60	23.64	23.90	0.25
PR1 (3)	Proposed Receptor (3rd Floor)	24.65	23.69	23.95	0.25
PR2 (3)	Proposed Receptor (3rd Floor)	24.60	23.61	23.85	0.23
PR3 (3)	Proposed Receptor (3rd Floor)	23.89	22.87	23.10	0.23
PR4 (3)	Proposed Receptor (3rd Floor)	23.95	22.91	23.14	0.23
PR5 (3)	Proposed Receptor (3rd Floor)	23.96	22.93	23.15	0.22
PR6 (3)	Proposed Receptor (3rd Floor)	23.97	22.94	23.16	0.22
PR7 (3)	Proposed Receptor (3rd Floor)	24.42	23.47	23.70	0.23
PR8 (3)	Proposed Receptor (3rd Floor)	24.33	23.41	23.64	0.23
PR9 (3)	Proposed Receptor (3rd Floor)	24.29	23.37	23.61	0.24
PR10 (3)	Proposed Receptor (3rd Floor)	24.20	23.31	23.55	0.24
PR11 (3)	Proposed Receptor (3rd Floor)	24.16	23.28	23.53	0.25
PR12 (3)	Proposed Receptor (3rd Floor)	23.98	23.14	23.38	0.24
PR13 (3)	Proposed Receptor (3rd Floor)	23.83	23.02	23.25	0.23
PR14 (3)	Proposed Receptor (3rd Floor)	23.78	22.98	23.21	0.23
PR15 (3)	Proposed Receptor (3rd Floor)	23.64	22.87	23.09	0.22
PR16 (3)	Proposed Receptor (3rd Floor)	23.59	22.83	23.05	0.22
PR17 (3)	Proposed Receptor (3rd Floor)	23.48	22.73	22.94	0.20
PR18 (3)	Proposed Receptor (3rd Floor)	23.44	22.70	22.91	0.20
PR19 (3)	Proposed Receptor (3rd Floor)	23.80	23.00	23.20	0.20
PR20 (3)	Proposed Receptor (3rd Floor)	23.89	23.07	23.28	0.21

Receptor		NO_2 (µg/m^3)			
		Baseline 2011	No Development 2017	With Development 2017	Development Contribution
PR21 (3)	Proposed Receptor (3rd Floor)	23.94	23.11	23.32	0.21
PR22 (3)	Proposed Receptor (3rd Floor)	24.04	23.18	23.41	0.23
PR23 (3)	Proposed Receptor (3rd Floor)	24.08	23.21	23.44	0.23
PR24 (3)	Proposed Receptor (3rd Floor)	24.40	23.46	23.68	0.22
PR1 (4)	Proposed Receptor (4th Floor)	24.41	23.47	23.69	0.22
PR2 (4)	Proposed Receptor (4th Floor)	23.72	22.91	23.10	0.19
PR3 (4)	Proposed Receptor (4th Floor)	22.90	22.06	22.25	0.19
PR4 (4)	Proposed Receptor (4th Floor)	22.86	22.03	22.22	0.19
PR5 (4)	Proposed Receptor (4th Floor)	22.89	22.06	22.24	0.18
PR6 (4)	Proposed Receptor (4th Floor)	22.90	22.07	22.25	0.18
PR7 (4)	Proposed Receptor (4th Floor)	23.67	22.87	23.06	0.19
PR8 (4)	Proposed Receptor (4th Floor)	23.62	22.83	23.03	0.20
PR9 (4)	Proposed Receptor (4th Floor)	23.59	22.80	23.01	0.20
PR10 (4)	Proposed Receptor (4th Floor)	23.50	22.73	22.94	0.20
PR11 (4)	Proposed Receptor (4th Floor)	23.40	22.65	22.86	0.20
PR12 (4)	Proposed Receptor (4th Floor)	23.31	22.59	22.79	0.20
PR13 (4)	Proposed Receptor (4th Floor)	23.26	22.54	22.73	0.19
PR14 (4)	Proposed Receptor (4th Floor)	23.23	22.52	22.71	0.19
PR15 (4)	Proposed Receptor (4th Floor)	23.16	22.46	22.65	0.19
PR16 (4)	Proposed Receptor (4th Floor)	23.13	22.44	22.62	0.18
PR17 (4)	Proposed Receptor (4th Floor)	23.06	22.38	22.56	0.18
PR18 (4)	Proposed Receptor (4th Floor)	23.03	22.36	22.54	0.18
PR19 (4)	Proposed Receptor (4th Floor)	23.31	22.59	22.77	0.18
PR20 (4)	Proposed Receptor (4th Floor)	23.36	22.63	22.81	0.18
PR21 (4)	Proposed Receptor (4th Floor)	23.39	22.65	22.85	0.19
PR22 (4)	Proposed Receptor (4th Floor)	23.45	22.69	22.89	0.19
PR23 (4)	Proposed Receptor (4th Floor)	23.47	22.71	22.91	0.19
PR24 (4)	Proposed Receptor (4th Floor)	23.66	22.87	23.06	0.19
PR1 (5)	Proposed Receptor (5th Floor)	23.66	22.86	23.06	0.20
PR2 (5)	Proposed Receptor (5th Floor)	23.00	22.31	22.47	0.16
PR3 (5)	Proposed Receptor (5th Floor)	22.13	21.44	21.60	0.16
PR4 (5)	Proposed Receptor (5th Floor)	22.08	21.41	21.56	0.15
PR5 (5)	Proposed Receptor (5th Floor)	22.11	21.43	21.58	0.15
PR9 (5)	Proposed Receptor (5th Floor)	22.12	21.44	21.59	0.15
PR10 (5)	Proposed Receptor (5th Floor)	22.87	22.21	22.38	0.17
PR11 (5)	Proposed Receptor (5th Floor)	22.75	22.12	22.28	0.16
PR12 (5)	Proposed Receptor (5th Floor)	22.72	22.10	22.26	0.16
PR13 (5)	Proposed Receptor (5th Floor)	22.71	22.09	22.25	0.16
PR14 (5)	Proposed Receptor (5th Floor)	22.70	22.09	22.25	0.16
PR15 (5)	Proposed Receptor (5th Floor)	22.67	22.06	22.22	0.16
PR16 (5)	Proposed Receptor (5th Floor)	22.66	22.06	22.21	0.15
PR17 (5)	Proposed Receptor (5th Floor)	22.62	22.03	22.18	0.15
PR18 (5)	Proposed Receptor (5th Floor)	22.60	22.02	22.17	0.15
PR19 (5)	Proposed Receptor (5th Floor)	22.81	22.19	22.34	0.15
PR20 (5)	Proposed Receptor (5th Floor)	22.85	22.20	22.36	0.16
PR21 (5)	Proposed Receptor (5th Floor)	22.86	22.21	22.37	0.16
PR22 (5)	Proposed Receptor (5th Floor)	22.89	22.23	22.39	0.16
PR23 (5)	Proposed Receptor (5th Floor)	22.89	22.23	22.39	0.16

Receptor		NO_2 (µg/m^3)			
		Baseline 2011	No Development 2017	With Development 2017	Development Contribution
PR24 (5)	Proposed Receptor (5th Floor)	23.00	22.32	22.48	0.16
PR1 (6)	Proposed Receptor (6th Floor)	23.00	22.31	22.47	0.16
PR2 (6)	Proposed Receptor (6th Floor)	22.40	21.82	21.96	0.13
PR3 (6)	Proposed Receptor (6th Floor)	21.53	20.94	21.07	0.13
PR4 (6)	Proposed Receptor (6th Floor)	21.50	20.92	21.05	0.13
PR5 (6)	Proposed Receptor (6th Floor)	21.52	20.94	21.07	0.13
PR9 (6)	Proposed Receptor (6th Floor)	21.53	20.95	21.08	0.13
PR10 (6)	Proposed Receptor (6th Floor)	22.32	21.75	21.90	0.14
PR11 (6)	Proposed Receptor (6th Floor)	22.22	21.67	21.80	0.13
PR12 (6)	Proposed Receptor (6th Floor)	22.21	21.67	21.80	0.13
PR13 (6)	Proposed Receptor (6th Floor)	22.23	21.68	21.82	0.14
PR14 (6)	Proposed Receptor (6th Floor)	22.23	21.69	21.82	0.13
PR15 (6)	Proposed Receptor (6th Floor)	22.22	21.68	21.82	0.14
PR16 (6)	Proposed Receptor (6th Floor)	22.22	21.68	21.82	0.14
PR17 (6)	Proposed Receptor (6th Floor)	22.21	21.67	21.81	0.14
PR18 (6)	Proposed Receptor (6th Floor)	22.20	21.67	21.80	0.13
PR19 (6)	Proposed Receptor (6th Floor)	22.35	21.79	21.93	0.13
PR20 (6)	Proposed Receptor (6th Floor)	22.36	21.80	21.94	0.13
PR21 (6)	Proposed Receptor (6th Floor)	22.36	21.80	21.94	0.13
PR22 (6)	Proposed Receptor (6th Floor)	22.36	21.79	21.94	0.14
PR23 (6)	Proposed Receptor (6th Floor)	22.36	21.79	21.94	0.14
PR24 (6)	Proposed Receptor (6th Floor)	22.43	21.85	21.99	0.13
PR1 (7)	Proposed Receptor (7th Floor)	22.42	21.84	21.98	0.13
PR2 (7)	Proposed Receptor (7th Floor)	21.92	21.42	21.53	0.11
PR3 (7)	Proposed Receptor (7th Floor)	21.04	20.55	20.66	0.11
PR4 (7)	Proposed Receptor (7th Floor)	21.03	20.54	20.65	0.11
PR5 (7)	Proposed Receptor (7th Floor)	21.04	20.56	20.66	0.10
PR9 (7)	Proposed Receptor (7th Floor)	21.05	20.56	20.67	0.11
PR10 (7)	Proposed Receptor (7th Floor)	21.84	21.37	21.48	0.11
PR11 (7)	Proposed Receptor (7th Floor)	21.77	21.31	21.41	0.10
PR12 (7)	Proposed Receptor (7th Floor)	21.77	21.31	21.42	0.11
PR13 (7)	Proposed Receptor (7th Floor)	21.80	21.34	21.45	0.11
PR21 (7)	Proposed Receptor (7th Floor)	21.80	21.34	21.45	0.11
PR22 (7)	Proposed Receptor (7th Floor)	21.91	21.42	21.54	0.12
PR23 (7)	Proposed Receptor (7th Floor)	21.91	21.42	21.53	0.11
PR24 (7)	Proposed Receptor (7th Floor)	21.96	21.46	21.57	0.11
PR1 (8)	Proposed Receptor (8th Floor)	21.95	21.45	21.56	0.11
PR2 (8)	Proposed Receptor (8th Floor)	21.51	21.09	21.19	0.10
PR3 (8)	Proposed Receptor (8th Floor)	20.65	20.22	20.31	0.09
PR4 (8)	Proposed Receptor (8th Floor)	20.65	20.22	20.31	0.09
PR5 (8)	Proposed Receptor (8th Floor)	20.66	20.23	20.32	0.09
PR23 (8)	Proposed Receptor (8th Floor)	20.66	20.24	20.33	0.09
PR24 (8)	Proposed Receptor (8th Floor)	21.55	21.13	21.23	0.10
PR1 (9)	Proposed Receptor (9th Floor)	21.54	21.12	21.22	0.10
PR2 (9)	Proposed Receptor (9th Floor)	21.18	20.82	20.89	0.07
PR3 (9)	Proposed Receptor (9th Floor)	20.32	19.96	20.03	0.07
PR4 (9)	Proposed Receptor (9th Floor)	20.32	19.96	20.04	0.08
PR5 (9)	Proposed Receptor (9th Floor)	20.33	19.97	20.05	0.08

Receptor		NO_2 (µg/m³)			
		Baseline 2011	No Development 2017	With Development 2017	Development Contribution
PR23 (9)	Proposed Receptor (9th Floor)	20.34	19.97	20.05	0.08
PR24 (9)	Proposed Receptor (9th Floor)	21.22	20.85	20.93	0.08
PR1 (10)	Proposed Receptor (10th Floor)	21.21	20.84	20.92	0.08
PR2 (10)	Proposed Receptor (10th Floor)	20.90	20.60	20.66	0.06
PR3 (10)	Proposed Receptor (10th Floor)	20.05	19.74	19.80	0.06
PR1 (11)	Proposed Receptor (11th Floor)	20.06	19.75	19.81	0.06
PR2 (11)	Proposed Receptor (11th Floor)	20.68	20.41	20.47	0.06
PR3 (11)	Proposed Receptor (11th Floor)	19.83	19.56	19.61	0.05
Annual Mean AQO not to be exceeded		**40 µg/m³**			

Table C3 Significance of Effects at Proposed Receptors (NO_2)

NO_2 Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m³)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
PR1 (1)	0.30	1%	<75% of AQAL	Negligible
PR2 (1)	0.32	1%	<75% of AQAL	Negligible
PR3 (1)	0.34	1%	<75% of AQAL	Negligible
PR4 (1)	0.34	1%	<75% of AQAL	Negligible
PR5 (1)	0.33	1%	<75% of AQAL	Negligible
PR1 (2)	0.26	1%	<75% of AQAL	Negligible
PR2 (2)	0.27	1%	<75% of AQAL	Negligible
PR3 (2)	0.28	1%	<75% of AQAL	Negligible
PR4 (2)	0.27	1%	<75% of AQAL	Negligible
PR5 (2)	0.28	1%	<75% of AQAL	Negligible
PR6 (2)	0.26	1%	<75% of AQAL	Negligible
PR7 (2)	0.27	1%	<75% of AQAL	Negligible
PR8 (2)	0.26	1%	<75% of AQAL	Negligible
PR9 (2)	0.28	1%	<75% of AQAL	Negligible
PR10 (2)	0.31	1%	<75% of AQAL	Negligible
PR11 (2)	0.29	1%	<75% of AQAL	Negligible
PR12 (2)	0.27	1%	<75% of AQAL	Negligible
PR13 (2)	0.27	1%	<75% of AQAL	Negligible
PR14 (2)	0.24	1%	<75% of AQAL	Negligible
PR15 (2)	0.23	1%	<75% of AQAL	Negligible
PR17 (2)	0.22	1%	<75% of AQAL	Negligible
PR18 (2)	0.22	1%	<75% of AQAL	Negligible
PR19 (2)	0.22	1%	<75% of AQAL	Negligible
PR20 (2)	0.23	1%	<75% of AQAL	Negligible
PR21 (2)	0.24	1%	<75% of AQAL	Negligible
PR22 (2)	0.25	1%	<75% of AQAL	Negligible
PR1 (3)	0.25	1%	<75% of AQAL	Negligible
PR2 (3)	0.23	1%	<75% of AQAL	Negligible
PR3 (3)	0.23	1%	<75% of AQAL	Negligible
PR4 (3)	0.23	1%	<75% of AQAL	Negligible
PR5 (3)	0.22	1%	<75% of AQAL	Negligible
PR6 (3)	0.22	1%	<75% of AQAL	Negligible

NO_2 Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m³)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
PR7 (3)	0.23	1%	<75% of AQAL	Negligible
PR8 (3)	0.23	1%	<75% of AQAL	Negligible
PR9 (3)	0.24	1%	<75% of AQAL	Negligible
PR10 (3)	0.24	1%	<75% of AQAL	Negligible
PR11 (3)	0.25	1%	<75% of AQAL	Negligible
PR12 (3)	0.24	1%	<75% of AQAL	Negligible
PR13 (3)	0.23	1%	<75% of AQAL	Negligible
PR14 (3)	0.23	1%	<75% of AQAL	Negligible
PR15 (3)	0.22	1%	<75% of AQAL	Negligible
PR16 (3)	0.22	1%	<75% of AQAL	Negligible
PR17 (3)	0.20	1%	<75% of AQAL	Negligible
PR18 (3)	0.20	1%	<75% of AQAL	Negligible
PR19 (3)	0.20	1%	<75% of AQAL	Negligible
PR20 (3)	0.21	1%	<75% of AQAL	Negligible
PR21 (3)	0.21	1%	<75% of AQAL	Negligible
PR22 (3)	0.23	1%	<75% of AQAL	Negligible
PR23 (3)	0.23	1%	<75% of AQAL	Negligible
PR24 (3)	0.22	1%	<75% of AQAL	Negligible
PR1 (4)	0.22	1%	<75% of AQAL	Negligible
PR2 (4)	0.19	0%	<75% of AQAL	Negligible
PR3 (4)	0.19	0%	<75% of AQAL	Negligible
PR4 (4)	0.19	0%	<75% of AQAL	Negligible
PR5 (4)	0.18	0%	<75% of AQAL	Negligible
PR6 (4)	0.18	0%	<75% of AQAL	Negligible
PR7 (4)	0.19	0%	<75% of AQAL	Negligible
PR8 (4)	0.20	1%	<75% of AQAL	Negligible
PR9 (4)	0.20	1%	<75% of AQAL	Negligible
PR10 (4)	0.20	1%	<75% of AQAL	Negligible
PR11 (4)	0.20	1%	<75% of AQAL	Negligible
PR12 (4)	0.20	1%	<75% of AQAL	Negligible
PR13 (4)	0.19	0%	<75% of AQAL	Negligible
PR14 (4)	0.19	0%	<75% of AQAL	Negligible
PR15 (4)	0.19	0%	<75% of AQAL	Negligible
PR16 (4)	0.18	0%	<75% of AQAL	Negligible
PR17 (4)	0.18	0%	<75% of AQAL	Negligible
PR18 (4)	0.18	0%	<75% of AQAL	Negligible
PR19 (4)	0.18	0%	<75% of AQAL	Negligible
PR20 (4)	0.18	0%	<75% of AQAL	Negligible
PR21 (4)	0.19	0%	<75% of AQAL	Negligible
PR22 (4)	0.19	0%	<75% of AQAL	Negligible
PR23 (4)	0.19	0%	<75% of AQAL	Negligible
PR24 (4)	0.19	0%	<75% of AQAL	Negligible
PR1 (5)	0.20	1%	<75% of AQAL	Negligible
PR2 (5)	0.16	0%	<75% of AQAL	Negligible
PR3 (5)	0.16	0%	<75% of AQAL	Negligible
PR4 (5)	0.15	0%	<75% of AQAL	Negligible
PR5 (5)	0.15	0%	<75% of AQAL	Negligible
PR9 (5)	0.15	0%	<75% of AQAL	Negligible

NO_2 Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m³)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
PR10 (5)	0.17	0%	<75% of AQAL	Negligible
PR11 (5)	0.16	0%	<75% of AQAL	Negligible
PR12 (5)	0.16	0%	<75% of AQAL	Negligible
PR13 (5)	0.16	0%	<75% of AQAL	Negligible
PR14 (5)	0.16	0%	<75% of AQAL	Negligible
PR15 (5)	0.16	0%	<75% of AQAL	Negligible
PR16 (5)	0.15	0%	<75% of AQAL	Negligible
PR17 (5)	0.15	0%	<75% of AQAL	Negligible
PR18 (5)	0.15	0%	<75% of AQAL	Negligible
PR19 (5)	0.15	0%	<75% of AQAL	Negligible
PR20 (5)	0.16	0%	<75% of AQAL	Negligible
PR21 (5)	0.16	0%	<75% of AQAL	Negligible
PR22 (5)	0.16	0%	<75% of AQAL	Negligible
PR23 (5)	0.16	0%	<75% of AQAL	Negligible
PR24 (5)	0.16	0%	<75% of AQAL	Negligible
PR1 (6)	0.16	0%	<75% of AQAL	Negligible
PR2 (6)	0.13	0%	<75% of AQAL	Negligible
PR3 (6)	0.13	0%	<75% of AQAL	Negligible
PR4 (6)	0.13	0%	<75% of AQAL	Negligible
PR5 (6)	0.13	0%	<75% of AQAL	Negligible
PR9 (6)	0.13	0%	<75% of AQAL	Negligible
PR10 (6)	0.14	0%	<75% of AQAL	Negligible
PR11 (6)	0.13	0%	<75% of AQAL	Negligible
PR12 (6)	0.13	0%	<75% of AQAL	Negligible
PR13 (6)	0.14	0%	<75% of AQAL	Negligible
PR14 (6)	0.13	0%	<75% of AQAL	Negligible
PR15 (6)	0.14	0%	<75% of AQAL	Negligible
PR16 (6)	0.14	0%	<75% of AQAL	Negligible
PR17 (6)	0.14	0%	<75% of AQAL	Negligible
PR18 (6)	0.13	0%	<75% of AQAL	Negligible
PR19 (6)	0.13	0%	<75% of AQAL	Negligible
PR20 (6)	0.13	0%	<75% of AQAL	Negligible
PR21 (6)	0.13	0%	<75% of AQAL	Negligible
PR22 (6)	0.14	0%	<75% of AQAL	Negligible
PR23 (6)	0.14	0%	<75% of AQAL	Negligible
PR24 (6)	0.13	0%	<75% of AQAL	Negligible
PR1 (7)	0.13	0%	<75% of AQAL	Negligible
PR2 (7)	0.11	0%	<75% of AQAL	Negligible
PR3 (7)	0.11	0%	<75% of AQAL	Negligible
PR4 (7)	0.11	0%	<75% of AQAL	Negligible
PR5 (7)	0.10	0%	<75% of AQAL	Negligible
PR9 (7)	0.11	0%	<75% of AQAL	Negligible
PR10 (7)	0.11	0%	<75% of AQAL	Negligible
PR11 (7)	0.10	0%	<75% of AQAL	Negligible
PR12 (7)	0.11	0%	<75% of AQAL	Negligible
PR13 (7)	0.11	0%	<75% of AQAL	Negligible
PR21 (7)	0.11	0%	<75% of AQAL	Negligible
PR22 (7)	0.12	0%	<75% of AQAL	Negligible

NO_2 Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m³)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
PR23 (7)	0.11	0%	<75% of AQAL	Negligible
PR24 (7)	0.11	0%	<75% of AQAL	Negligible
PR1 (8)	0.11	0%	<75% of AQAL	Negligible
PR2 (8)	0.10	0%	<75% of AQAL	Negligible
PR3 (8)	0.09	0%	<75% of AQAL	Negligible
PR4 (8)	0.09	0%	<75% of AQAL	Negligible
PR5 (8)	0.09	0%	<75% of AQAL	Negligible
PR23 (8)	0.09	0%	<75% of AQAL	Negligible
PR24 (8)	0.10	0%	<75% of AQAL	Negligible
PR1 (9)	0.10	0%	<75% of AQAL	Negligible
PR2 (9)	0.07	0%	<75% of AQAL	Negligible
PR3 (9)	0.07	0%	<75% of AQAL	Negligible
PR4 (9)	0.08	0%	<75% of AQAL	Negligible
PR5 (9)	0.08	0%	<75% of AQAL	Negligible
PR23 (9)	0.08	0%	<75% of AQAL	Negligible
PR24 (9)	0.08	0%	<75% of AQAL	Negligible
PR1 (10)	0.08	0%	<75% of AQAL	Negligible
PR2 (10)	0.06	0%	<75% of AQAL	Negligible
PR3 (10)	0.06	0%	<75% of AQAL	Negligible
PR1 (11)	0.06	0%	<75% of AQAL	Negligible
PR2 (11)	0.06	0%	<75% of AQAL	Negligible
PR3 (11)	0.05	0%	<75% of AQAL	Negligible
0% means a change of <0.5%				

Table C4 Predicted Annual Average Concentrations of PM_{10} at Proposed Receptor Locations

Receptor		PM_{10} (µg/m³)			
		Baseline 2011	No Development 2017	With Development 2017	Development Contribution
PR1 (1)	Proposed Receptor (1st Floor)	19.75	19.56	19.62	0.05
PR2 (1)	Proposed Receptor (1st Floor)	19.74	19.53	19.59	0.06
PR3 (1)	Proposed Receptor (1st Floor)	19.95	19.72	19.79	0.07
PR4 (1)	Proposed Receptor (1st Floor)	19.89	19.67	19.73	0.06
PR5 (1)	Proposed Receptor (1st Floor)	19.88	19.66	19.72	0.06
PR1 (2)	Proposed Receptor (2nd Floor)	19.57	19.41	19.46	0.05
PR2 (2)	Proposed Receptor (2nd Floor)	19.47	19.30	19.35	0.05
PR3 (2)	Proposed Receptor (2nd Floor)	19.55	19.37	19.42	0.05
PR4 (2)	Proposed Receptor (2nd Floor)	19.53	19.35	19.40	0.05
PR5 (2)	Proposed Receptor (2nd Floor)	19.52	19.35	19.40	0.05
PR6 (2)	Proposed Receptor (2nd Floor)	19.49	19.34	19.38	0.04
PR7 (2)	Proposed Receptor (2nd Floor)	19.45	19.31	19.35	0.04
PR8 (2)	Proposed Receptor (2nd Floor)	19.44	19.29	19.34	0.04
PR9 (2)	Proposed Receptor (2nd Floor)	19.41	19.27	19.31	0.05
PR10 (2)	Proposed Receptor (2nd Floor)	19.41	19.27	19.31	0.05
PR11 (2)	Proposed Receptor (2nd Floor)	19.36	19.22	19.27	0.05
PR12 (2)	Proposed Receptor (2nd Floor)	19.32	19.19	19.23	0.04
PR13 (2)	Proposed Receptor (2nd Floor)	19.31	19.18	19.22	0.04

Receptor		PM_{10} (µg/m^3)			
		Baseline 2011	No Development 2017	With Development 2017	Development Contribution
PR14 (2)	Proposed Receptor (2nd Floor)	19.27	19.15	19.19	0.04
PR15 (2)	Proposed Receptor (2nd Floor)	19.26	19.14	19.17	0.04
PR17 (2)	Proposed Receptor (2nd Floor)	19.24	19.12	19.15	0.03
PR18 (2)	Proposed Receptor (2nd Floor)	19.23	19.11	19.14	0.03
PR19 (2)	Proposed Receptor (2nd Floor)	19.30	19.17	19.21	0.03
PR20 (2)	Proposed Receptor (2nd Floor)	19.33	19.19	19.23	0.04
PR21 (2)	Proposed Receptor (2nd Floor)	19.34	19.21	19.24	0.04
PR22 (2)	Proposed Receptor (2nd Floor)	19.37	19.23	19.27	0.04
PR1 (3)	Proposed Receptor (3rd Floor)	19.38	19.24	19.28	0.04
PR2 (3)	Proposed Receptor (3rd Floor)	19.40	19.26	19.30	0.04
PR3 (3)	Proposed Receptor (3rd Floor)	19.24	19.10	19.14	0.04
PR4 (3)	Proposed Receptor (3rd Floor)	19.25	19.12	19.15	0.04
PR5 (3)	Proposed Receptor (3rd Floor)	19.25	19.11	19.15	0.04
PR6 (3)	Proposed Receptor (3rd Floor)	19.25	19.11	19.15	0.04
PR7 (3)	Proposed Receptor (3rd Floor)	19.36	19.23	19.26	0.04
PR8 (3)	Proposed Receptor (3rd Floor)	19.34	19.21	19.24	0.04
PR9 (3)	Proposed Receptor (3rd Floor)	19.33	19.20	19.23	0.04
PR10 (3)	Proposed Receptor (3rd Floor)	19.30	19.17	19.21	0.04
PR11 (3)	Proposed Receptor (3rd Floor)	19.29	19.16	19.20	0.04
PR12 (3)	Proposed Receptor (3rd Floor)	19.26	19.13	19.17	0.04
PR13 (3)	Proposed Receptor (3rd Floor)	19.23	19.12	19.15	0.04
PR14 (3)	Proposed Receptor (3rd Floor)	19.22	19.11	19.14	0.04
PR15 (3)	Proposed Receptor (3rd Floor)	19.20	19.09	19.12	0.03
PR16 (3)	Proposed Receptor (3rd Floor)	19.19	19.08	19.12	0.03
PR17 (3)	Proposed Receptor (3rd Floor)	19.18	19.07	19.10	0.03
PR18 (3)	Proposed Receptor (3rd Floor)	19.17	19.06	19.09	0.03
PR19 (3)	Proposed Receptor (3rd Floor)	19.23	19.11	19.14	0.03
PR20 (3)	Proposed Receptor (3rd Floor)	19.25	19.13	19.16	0.03
PR21 (3)	Proposed Receptor (3rd Floor)	19.26	19.14	19.17	0.03
PR22 (3)	Proposed Receptor (3rd Floor)	19.28	19.15	19.19	0.04
PR23 (3)	Proposed Receptor (3rd Floor)	19.28	19.16	19.20	0.04
PR24 (3)	Proposed Receptor (3rd Floor)	19.35	19.22	19.25	0.04
PR1 (4)	Proposed Receptor (4th Floor)	19.35	19.22	19.26	0.04
PR2 (4)	Proposed Receptor (4th Floor)	19.24	19.13	19.16	0.03
PR3 (4)	Proposed Receptor (4th Floor)	19.06	18.95	18.98	0.03
PR4 (4)	Proposed Receptor (4th Floor)	19.06	18.95	18.98	0.03
PR5 (4)	Proposed Receptor (4th Floor)	19.06	18.95	18.98	0.03
PR6 (4)	Proposed Receptor (4th Floor)	19.06	18.95	18.98	0.03
PR7 (4)	Proposed Receptor (4th Floor)	19.23	19.12	19.15	0.03
PR8 (4)	Proposed Receptor (4th Floor)	19.22	19.11	19.14	0.03
PR9 (4)	Proposed Receptor (4th Floor)	19.21	19.10	19.13	0.03
PR10 (4)	Proposed Receptor (4th Floor)	19.19	19.08	19.12	0.03
PR11 (4)	Proposed Receptor (4th Floor)	19.17	19.07	19.10	0.03
PR12 (4)	Proposed Receptor (4th Floor)	19.16	19.05	19.08	0.03
PR13 (4)	Proposed Receptor (4th Floor)	19.14	19.04	19.07	0.03
PR14 (4)	Proposed Receptor (4th Floor)	19.14	19.04	19.07	0.03
PR15 (4)	Proposed Receptor (4th Floor)	19.13	19.03	19.06	0.03
PR16 (4)	Proposed Receptor (4th Floor)	19.12	19.02	19.05	0.03

Receptor		PM_{10} (µg/m^3)			
		Baseline 2011	No Development 2017	With Development 2017	Development Contribution
PR17 (4)	Proposed Receptor (4th Floor)	19.11	19.01	19.04	0.03
PR18 (4)	Proposed Receptor (4th Floor)	19.11	19.01	19.04	0.03
PR19 (4)	Proposed Receptor (4th Floor)	19.15	19.05	19.08	0.03
PR20 (4)	Proposed Receptor (4th Floor)	19.16	19.06	19.09	0.03
PR21 (4)	Proposed Receptor (4th Floor)	19.17	19.07	19.09	0.03
PR22 (4)	Proposed Receptor (4th Floor)	19.18	19.08	19.11	0.03
PR23 (4)	Proposed Receptor (4th Floor)	19.19	19.08	19.11	0.03
PR24 (4)	Proposed Receptor (4th Floor)	19.22	19.11	19.14	0.03
PR1 (5)	Proposed Receptor (5th Floor)	19.23	19.12	19.15	0.03
PR2 (5)	Proposed Receptor (5th Floor)	19.12	19.03	19.05	0.03
PR3 (5)	Proposed Receptor (5th Floor)	18.93	18.84	18.86	0.03
PR4 (5)	Proposed Receptor (5th Floor)	18.93	18.83	18.86	0.02
PR5 (5)	Proposed Receptor (5th Floor)	18.93	18.84	18.86	0.02
PR9 (5)	Proposed Receptor (5th Floor)	18.93	18.84	18.86	0.02
PR10 (5)	Proposed Receptor (5th Floor)	19.09	19.00	19.03	0.03
PR11 (5)	Proposed Receptor (5th Floor)	19.07	18.98	19.01	0.03
PR12 (5)	Proposed Receptor (5th Floor)	19.06	18.98	19.00	0.03
PR13 (5)	Proposed Receptor (5th Floor)	19.06	18.97	19.00	0.03
PR14 (5)	Proposed Receptor (5th Floor)	19.06	18.97	19.00	0.03
PR15 (5)	Proposed Receptor (5th Floor)	19.05	18.97	18.99	0.02
PR16 (5)	Proposed Receptor (5th Floor)	19.05	18.96	18.99	0.02
PR17 (5)	Proposed Receptor (5th Floor)	19.04	18.96	18.98	0.02
PR18 (5)	Proposed Receptor (5th Floor)	19.04	18.96	18.98	0.02
PR19 (5)	Proposed Receptor (5th Floor)	19.08	18.99	19.01	0.02
PR20 (5)	Proposed Receptor (5th Floor)	19.08	18.99	19.02	0.02
PR21 (5)	Proposed Receptor (5th Floor)	19.09	19.00	19.02	0.03
PR22 (5)	Proposed Receptor (5th Floor)	19.09	19.00	19.03	0.03
PR23 (5)	Proposed Receptor (5th Floor)	19.09	19.00	19.03	0.03
PR24 (5)	Proposed Receptor (5th Floor)	19.12	19.02	19.05	0.03
PR1 (6)	Proposed Receptor (6th Floor)	19.12	19.02	19.05	0.03
PR2 (6)	Proposed Receptor (6th Floor)	19.02	18.94	18.96	0.02
PR3 (6)	Proposed Receptor (6th Floor)	18.83	18.75	18.78	0.02
PR4 (6)	Proposed Receptor (6th Floor)	18.83	18.75	18.77	0.02
PR5 (6)	Proposed Receptor (6th Floor)	18.83	18.75	18.77	0.02
PR9 (6)	Proposed Receptor (6th Floor)	18.83	18.75	18.78	0.02
PR10 (6)	Proposed Receptor (6th Floor)	19.01	18.93	18.95	0.02
PR11 (6)	Proposed Receptor (6th Floor)	18.99	18.91	18.94	0.02
PR12 (6)	Proposed Receptor (6th Floor)	18.99	18.91	18.93	0.02
PR13 (6)	Proposed Receptor (6th Floor)	18.99	18.91	18.93	0.02
PR14 (6)	Proposed Receptor (6th Floor)	18.99	18.91	18.93	0.02
PR15 (6)	Proposed Receptor (6th Floor)	18.99	18.91	18.93	0.02
PR16 (6)	Proposed Receptor (6th Floor)	18.98	18.91	18.93	0.02
PR17 (6)	Proposed Receptor (6th Floor)	18.98	18.91	18.93	0.02
PR18 (6)	Proposed Receptor (6th Floor)	18.98	18.91	18.93	0.02
PR19 (6)	Proposed Receptor (6th Floor)	19.00	18.93	18.95	0.02
PR20 (6)	Proposed Receptor (6th Floor)	19.01	18.93	18.95	0.02
PR21 (6)	Proposed Receptor (6th Floor)	19.01	18.93	18.95	0.02
PR22 (6)	Proposed Receptor (6th Floor)	19.01	18.93	18.95	0.02

Receptor		PM_{10} (µg/m³)			
		Baseline 2011	No Development 2017	With Development 2017	Development Contribution
PR23 (6)	Proposed Receptor (6th Floor)	19.01	18.93	18.95	0.02
PR24 (6)	Proposed Receptor (6th Floor)	19.02	18.94	18.97	0.02
PR1 (7)	Proposed Receptor (7th Floor)	19.02	18.94	18.96	0.02
PR2 (7)	Proposed Receptor (7th Floor)	18.94	18.88	18.89	0.02
PR3 (7)	Proposed Receptor (7th Floor)	18.76	18.69	18.71	0.02
PR4 (7)	Proposed Receptor (7th Floor)	18.75	18.69	18.71	0.02
PR5 (7)	Proposed Receptor (7th Floor)	18.76	18.69	18.71	0.02
PR9 (7)	Proposed Receptor (7th Floor)	18.76	18.69	18.71	0.02
PR10 (7)	Proposed Receptor (7th Floor)	18.93	18.87	18.88	0.02
PR11 (7)	Proposed Receptor (7th Floor)	18.92	18.86	18.87	0.02
PR12 (7)	Proposed Receptor (7th Floor)	18.92	18.86	18.87	0.02
PR13 (7)	Proposed Receptor (7th Floor)	18.92	18.86	18.88	0.02
PR21 (7)	Proposed Receptor (7th Floor)	18.92	18.86	18.88	0.02
PR22 (7)	Proposed Receptor (7th Floor)	18.94	18.87	18.89	0.02
PR23 (7)	Proposed Receptor (7th Floor)	18.94	18.87	18.89	0.02
PR24 (7)	Proposed Receptor (7th Floor)	18.95	18.88	18.90	0.02
PR1 (8)	Proposed Receptor (8th Floor)	18.95	18.88	18.90	0.02
PR2 (8)	Proposed Receptor (8th Floor)	18.88	18.82	18.84	0.01
PR3 (8)	Proposed Receptor (8th Floor)	18.69	18.64	18.65	0.01
PR4 (8)	Proposed Receptor (8th Floor)	18.69	18.64	18.65	0.01
PR5 (8)	Proposed Receptor (8th Floor)	18.70	18.64	18.65	0.01
PR23 (8)	Proposed Receptor (8th Floor)	18.70	18.64	18.65	0.01
PR24 (8)	Proposed Receptor (8th Floor)	18.89	18.83	18.84	0.01
PR1 (9)	Proposed Receptor (9th Floor)	18.88	18.83	18.84	0.01
PR2 (9)	Proposed Receptor (9th Floor)	18.83	18.78	18.79	0.01
PR3 (9)	Proposed Receptor (9th Floor)	18.64	18.60	18.61	0.01
PR4 (9)	Proposed Receptor (9th Floor)	18.64	18.60	18.61	0.01
PR5 (9)	Proposed Receptor (9th Floor)	18.65	18.60	18.61	0.01
PR23 (9)	Proposed Receptor (9th Floor)	18.65	18.60	18.61	0.01
PR24 (9)	Proposed Receptor (9th Floor)	18.83	18.79	18.80	0.01
PR1 (10)	Proposed Receptor (10th Floor)	18.83	18.78	18.80	0.01
PR2 (10)	Proposed Receptor (10th Floor)	18.79	18.75	18.76	0.01
PR3 (10)	Proposed Receptor (10th Floor)	18.60	18.56	18.57	0.01
PR1 (11)	Proposed Receptor (11th Floor)	18.60	18.56	18.57	0.01
PR2 (11)	Proposed Receptor (11th Floor)	18.75	18.72	18.73	0.01
PR3 (11)	Proposed Receptor (11th Floor)	18.57	18.53	18.54	0.01
Annual Mean AQO not to be exceeded		**40 µg/m³**			

Table C5 Significance of Effects at Proposed Receptors (PM_{10})

NO_2 Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m³)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
PR1 (1)	0.05	0%	<75% of AQAL	Negligible
PR2 (1)	0.06	0%	<75% of AQAL	Negligible
PR3 (1)	0.07	0%	<75% of AQAL	Negligible
PR4 (1)	0.06	0%	<75% of AQAL	Negligible

NO_2 Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m³)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
PR5 (1)	0.06	0%	<75% of AQAL	Negligible
PR1 (2)	0.05	0%	<75% of AQAL	Negligible
PR2 (2)	0.05	0%	<75% of AQAL	Negligible
PR3 (2)	0.05	0%	<75% of AQAL	Negligible
PR4 (2)	0.05	0%	<75% of AQAL	Negligible
PR5 (2)	0.05	0%	<75% of AQAL	Negligible
PR6 (2)	0.04	0%	<75% of AQAL	Negligible
PR7 (2)	0.04	0%	<75% of AQAL	Negligible
PR8 (2)	0.04	0%	<75% of AQAL	Negligible
PR9 (2)	0.05	0%	<75% of AQAL	Negligible
PR10 (2)	0.05	0%	<75% of AQAL	Negligible
PR11 (2)	0.05	0%	<75% of AQAL	Negligible
PR12 (2)	0.04	0%	<75% of AQAL	Negligible
PR13 (2)	0.04	0%	<75% of AQAL	Negligible
PR14 (2)	0.04	0%	<75% of AQAL	Negligible
PR15 (2)	0.04	0%	<75% of AQAL	Negligible
PR17 (2)	0.03	0%	<75% of AQAL	Negligible
PR18 (2)	0.03	0%	<75% of AQAL	Negligible
PR19 (2)	0.03	0%	<75% of AQAL	Negligible
PR20 (2)	0.04	0%	<75% of AQAL	Negligible
PR21 (2)	0.04	0%	<75% of AQAL	Negligible
PR22 (2)	0.04	0%	<75% of AQAL	Negligible
PR1 (3)	0.04	0%	<75% of AQAL	Negligible
PR2 (3)	0.04	0%	<75% of AQAL	Negligible
PR3 (3)	0.04	0%	<75% of AQAL	Negligible
PR4 (3)	0.04	0%	<75% of AQAL	Negligible
PR5 (3)	0.04	0%	<75% of AQAL	Negligible
PR6 (3)	0.04	0%	<75% of AQAL	Negligible
PR7 (3)	0.04	0%	<75% of AQAL	Negligible
PR8 (3)	0.04	0%	<75% of AQAL	Negligible
PR9 (3)	0.04	0%	<75% of AQAL	Negligible
PR10 (3)	0.04	0%	<75% of AQAL	Negligible
PR11 (3)	0.04	0%	<75% of AQAL	Negligible
PR12 (3)	0.04	0%	<75% of AQAL	Negligible
PR13 (3)	0.04	0%	<75% of AQAL	Negligible
PR14 (3)	0.04	0%	<75% of AQAL	Negligible
PR15 (3)	0.03	0%	<75% of AQAL	Negligible
PR16 (3)	0.03	0%	<75% of AQAL	Negligible
PR17 (3)	0.03	0%	<75% of AQAL	Negligible
PR18 (3)	0.03	0%	<75% of AQAL	Negligible
PR19 (3)	0.03	0%	<75% of AQAL	Negligible
PR20 (3)	0.03	0%	<75% of AQAL	Negligible
PR21 (3)	0.03	0%	<75% of AQAL	Negligible
PR22 (3)	0.04	0%	<75% of AQAL	Negligible
PR23 (3)	0.04	0%	<75% of AQAL	Negligible
PR24 (3)	0.04	0%	<75% of AQAL	Negligible
PR1 (4)	0.04	0%	<75% of AQAL	Negligible
PR2 (4)	0.03	0%	<75% of AQAL	Negligible

NO_2 Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m³)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
PR3 (4)	0.03	0%	<75% of AQAL	Negligible
PR4 (4)	0.03	0%	<75% of AQAL	Negligible
PR5 (4)	0.03	0%	<75% of AQAL	Negligible
PR6 (4)	0.03	0%	<75% of AQAL	Negligible
PR7 (4)	0.03	0%	<75% of AQAL	Negligible
PR8 (4)	0.03	0%	<75% of AQAL	Negligible
PR9 (4)	0.03	0%	<75% of AQAL	Negligible
PR10 (4)	0.03	0%	<75% of AQAL	Negligible
PR11 (4)	0.03	0%	<75% of AQAL	Negligible
PR12 (4)	0.03	0%	<75% of AQAL	Negligible
PR13 (4)	0.03	0%	<75% of AQAL	Negligible
PR14 (4)	0.03	0%	<75% of AQAL	Negligible
PR15 (4)	0.03	0%	<75% of AQAL	Negligible
PR16 (4)	0.03	0%	<75% of AQAL	Negligible
PR17 (4)	0.03	0%	<75% of AQAL	Negligible
PR18 (4)	0.03	0%	<75% of AQAL	Negligible
PR19 (4)	0.03	0%	<75% of AQAL	Negligible
PR20 (4)	0.03	0%	<75% of AQAL	Negligible
PR21 (4)	0.03	0%	<75% of AQAL	Negligible
PR22 (4)	0.03	0%	<75% of AQAL	Negligible
PR23 (4)	0.03	0%	<75% of AQAL	Negligible
PR24 (4)	0.03	0%	<75% of AQAL	Negligible
PR1 (5)	0.03	0%	<75% of AQAL	Negligible
PR2 (5)	0.03	0%	<75% of AQAL	Negligible
PR3 (5)	0.03	0%	<75% of AQAL	Negligible
PR4 (5)	0.02	0%	<75% of AQAL	Negligible
PR5 (5)	0.02	0%	<75% of AQAL	Negligible
PR9 (5)	0.02	0%	<75% of AQAL	Negligible
PR10 (5)	0.03	0%	<75% of AQAL	Negligible
PR11 (5)	0.03	0%	<75% of AQAL	Negligible
PR12 (5)	0.03	0%	<75% of AQAL	Negligible
PR13 (5)	0.03	0%	<75% of AQAL	Negligible
PR14 (5)	0.03	0%	<75% of AQAL	Negligible
PR15 (5)	0.02	0%	<75% of AQAL	Negligible
PR16 (5)	0.02	0%	<75% of AQAL	Negligible
PR17 (5)	0.02	0%	<75% of AQAL	Negligible
PR18 (5)	0.02	0%	<75% of AQAL	Negligible
PR19 (5)	0.02	0%	<75% of AQAL	Negligible
PR20 (5)	0.02	0%	<75% of AQAL	Negligible
PR21 (5)	0.03	0%	<75% of AQAL	Negligible
PR22 (5)	0.03	0%	<75% of AQAL	Negligible
PR23 (5)	0.03	0%	<75% of AQAL	Negligible
PR24 (5)	0.03	0%	<75% of AQAL	Negligible
PR1 (6)	0.03	0%	<75% of AQAL	Negligible
PR2 (6)	0.02	0%	<75% of AQAL	Negligible
PR3 (6)	0.02	0%	<75% of AQAL	Negligible
PR4 (6)	0.02	0%	<75% of AQAL	Negligible
PR5 (6)	0.02	0%	<75% of AQAL	Negligible

NO_2 Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m³)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
PR9 (6)	0.02	0%	<75% of AQAL	Negligible
PR10 (6)	0.02	0%	<75% of AQAL	Negligible
PR11 (6)	0.02	0%	<75% of AQAL	Negligible
PR12 (6)	0.02	0%	<75% of AQAL	Negligible
PR13 (6)	0.02	0%	<75% of AQAL	Negligible
PR14 (6)	0.02	0%	<75% of AQAL	Negligible
PR15 (6)	0.02	0%	<75% of AQAL	Negligible
PR16 (6)	0.02	0%	<75% of AQAL	Negligible
PR17 (6)	0.02	0%	<75% of AQAL	Negligible
PR18 (6)	0.02	0%	<75% of AQAL	Negligible
PR19 (6)	0.02	0%	<75% of AQAL	Negligible
PR20 (6)	0.02	0%	<75% of AQAL	Negligible
PR21 (6)	0.02	0%	<75% of AQAL	Negligible
PR22 (6)	0.02	0%	<75% of AQAL	Negligible
PR23 (6)	0.02	0%	<75% of AQAL	Negligible
PR24 (6)	0.02	0%	<75% of AQAL	Negligible
PR1 (7)	0.02	0%	<75% of AQAL	Negligible
PR2 (7)	0.02	0%	<75% of AQAL	Negligible
PR3 (7)	0.02	0%	<75% of AQAL	Negligible
PR4 (7)	0.02	0%	<75% of AQAL	Negligible
PR5 (7)	0.02	0%	<75% of AQAL	Negligible
PR9 (7)	0.02	0%	<75% of AQAL	Negligible
PR10 (7)	0.02	0%	<75% of AQAL	Negligible
PR11 (7)	0.02	0%	<75% of AQAL	Negligible
PR12 (7)	0.02	0%	<75% of AQAL	Negligible
PR13 (7)	0.02	0%	<75% of AQAL	Negligible
PR21 (7)	0.02	0%	<75% of AQAL	Negligible
PR22 (7)	0.02	0%	<75% of AQAL	Negligible
PR23 (7)	0.02	0%	<75% of AQAL	Negligible
PR24 (7)	0.02	0%	<75% of AQAL	Negligible
PR1 (8)	0.02	0%	<75% of AQAL	Negligible
PR2 (8)	0.01	0%	<75% of AQAL	Negligible
PR3 (8)	0.01	0%	<75% of AQAL	Negligible
PR4 (8)	0.01	0%	<75% of AQAL	Negligible
PR5 (8)	0.01	0%	<75% of AQAL	Negligible
PR23 (8)	0.01	0%	<75% of AQAL	Negligible
PR24 (8)	0.01	0%	<75% of AQAL	Negligible
PR1 (9)	0.01	0%	<75% of AQAL	Negligible
PR2 (9)	0.01	0%	<75% of AQAL	Negligible
PR3 (9)	0.01	0%	<75% of AQAL	Negligible
PR4 (9)	0.01	0%	<75% of AQAL	Negligible
PR5 (9)	0.01	0%	<75% of AQAL	Negligible
PR23 (9)	0.01	0%	<75% of AQAL	Negligible
PR24 (9)	0.01	0%	<75% of AQAL	Negligible
PR1 (10)	0.01	0%	<75% of AQAL	Negligible
PR2 (10)	0.01	0%	<75% of AQAL	Negligible
PR3 (10)	0.01	0%	<75% of AQAL	Negligible
PR1 (11)	0.01	0%	<75% of AQAL	Negligible

NO_2 Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m³)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
PR2 (11)	0.01	0%	<75% of AQAL	Negligible
PR3 (11)	0.01	0%	<75% of AQAL	Negligible
0% means a change of <0.5%				

Theoretical Sussex Scenario – Proposed Receptors

Table C6 Predicted Change in NO_2 with Baseline Year Emissions Factor at Proposed Receptor Locations

Receptor		NO_2 (µg/m³)		
		No development 2017	With development 2017	Development Contribution
PR1 (1)	Proposed Receptor (1st Floor)	26.79	27.17	0.38
PR2 (1)	Proposed Receptor (1st Floor)	26.84	27.25	0.40
PR3 (1)	Proposed Receptor (1st Floor)	27.96	28.39	0.43
PR4 (1)	Proposed Receptor (1st Floor)	27.68	28.11	0.42
PR5 (1)	Proposed Receptor (1st Floor)	27.65	28.08	0.42
PR1 (2)	Proposed Receptor (2nd Floor)	25.81	26.13	0.32
PR2 (2)	Proposed Receptor (2nd Floor)	25.40	25.74	0.34
PR3 (2)	Proposed Receptor (2nd Floor)	25.78	26.13	0.34
PR4 (2)	Proposed Receptor (2nd Floor)	25.71	26.07	0.35
PR5 (2)	Proposed Receptor (2nd Floor)	25.72	26.07	0.34
PR6 (2)	Proposed Receptor (2nd Floor)	25.40	25.74	0.33
PR7 (2)	Proposed Receptor (2nd Floor)	25.25	25.58	0.33
PR8 (2)	Proposed Receptor (2nd Floor)	25.18	25.51	0.33
PR9 (2)	Proposed Receptor (2nd Floor)	25.10	25.45	0.35
PR10 (2)	Proposed Receptor (2nd Floor)	25.19	25.57	0.38
PR11 (2)	Proposed Receptor (2nd Floor)	24.85	25.21	0.36
PR12 (2)	Proposed Receptor (2nd Floor)	24.58	24.92	0.33
PR13 (2)	Proposed Receptor (2nd Floor)	24.49	24.82	0.32
PR14 (2)	Proposed Receptor (2nd Floor)	24.27	24.58	0.31
PR15 (2)	Proposed Receptor (2nd Floor)	24.20	24.49	0.29
PR17 (2)	Proposed Receptor (2nd Floor)	24.03	24.31	0.28
PR18 (2)	Proposed Receptor (2nd Floor)	23.98	24.25	0.27
PR19 (2)	Proposed Receptor (2nd Floor)	24.43	24.71	0.27
PR20 (2)	Proposed Receptor (2nd Floor)	24.56	24.86	0.29
PR21 (2)	Proposed Receptor (2nd Floor)	24.63	24.94	0.30
PR22 (2)	Proposed Receptor (2nd Floor)	24.80	25.12	0.32
PR1 (3)	Proposed Receptor (3rd Floor)	24.86	25.18	0.32
PR2 (3)	Proposed Receptor (3rd Floor)	24.80	25.08	0.28
PR3 (3)	Proposed Receptor (3rd Floor)	24.09	24.38	0.28
PR4 (3)	Proposed Receptor (3rd Floor)	24.15	24.43	0.27
PR5 (3)	Proposed Receptor (3rd Floor)	24.17	24.45	0.28
PR6 (3)	Proposed Receptor (3rd Floor)	24.18	24.46	0.28

Receptor		NO_2 (µg/m^3)		
		No development 2017	With development 2017	Development Contribution
PR7 (3)	Proposed Receptor (3rd Floor)	24.61	24.90	0.28
PR8 (3)	Proposed Receptor (3rd Floor)	24.52	24.81	0.28
PR9 (3)	Proposed Receptor (3rd Floor)	24.47	24.77	0.29
PR10 (3)	Proposed Receptor (3rd Floor)	24.38	24.68	0.30
PR11 (3)	Proposed Receptor (3rd Floor)	24.33	24.65	0.32
PR12 (3)	Proposed Receptor (3rd Floor)	24.15	24.45	0.30
PR13 (3)	Proposed Receptor (3rd Floor)	24.00	24.29	0.29
PR14 (3)	Proposed Receptor (3rd Floor)	23.95	24.23	0.28
PR15 (3)	Proposed Receptor (3rd Floor)	23.81	24.08	0.27
PR16 (3)	Proposed Receptor (3rd Floor)	23.75	24.02	0.26
PR17 (3)	Proposed Receptor (3rd Floor)	23.63	23.89	0.25
PR18 (3)	Proposed Receptor (3rd Floor)	23.59	23.85	0.25
PR19 (3)	Proposed Receptor (3rd Floor)	23.97	24.21	0.24
PR20 (3)	Proposed Receptor (3rd Floor)	24.06	24.32	0.26
PR21 (3)	Proposed Receptor (3rd Floor)	24.11	24.38	0.27
PR22 (3)	Proposed Receptor (3rd Floor)	24.22	24.50	0.28
PR23 (3)	Proposed Receptor (3rd Floor)	24.26	24.54	0.28
PR24 (3)	Proposed Receptor (3rd Floor)	24.58	24.87	0.28
PR1 (4)	Proposed Receptor (4th Floor)	24.60	24.88	0.27
PR2 (4)	Proposed Receptor (4th Floor)	23.90	24.13	0.23
PR3 (4)	Proposed Receptor (4th Floor)	23.06	23.30	0.23
PR4 (4)	Proposed Receptor (4th Floor)	23.03	23.26	0.22
PR5 (4)	Proposed Receptor (4th Floor)	23.05	23.29	0.23
PR6 (4)	Proposed Receptor (4th Floor)	23.07	23.31	0.23
PR7 (4)	Proposed Receptor (4th Floor)	23.84	24.08	0.24
PR8 (4)	Proposed Receptor (4th Floor)	23.79	24.03	0.24
PR9 (4)	Proposed Receptor (4th Floor)	23.75	24.01	0.25
PR10 (4)	Proposed Receptor (4th Floor)	23.66	23.91	0.24
PR11 (4)	Proposed Receptor (4th Floor)	23.55	23.81	0.25
PR12 (4)	Proposed Receptor (4th Floor)	23.46	23.71	0.25
PR13 (4)	Proposed Receptor (4th Floor)	23.40	23.64	0.24
PR14 (4)	Proposed Receptor (4th Floor)	23.38	23.62	0.24
PR15 (4)	Proposed Receptor (4th Floor)	23.30	23.53	0.23
PR16 (4)	Proposed Receptor (4th Floor)	23.27	23.50	0.23
PR17 (4)	Proposed Receptor (4th Floor)	23.19	23.42	0.23
PR18 (4)	Proposed Receptor (4th Floor)	23.17	23.39	0.22
PR19 (4)	Proposed Receptor (4th Floor)	23.45	23.67	0.22
PR20 (4)	Proposed Receptor (4th Floor)	23.51	23.74	0.23
PR21 (4)	Proposed Receptor (4th Floor)	23.54	23.79	0.24
PR22 (4)	Proposed Receptor (4th Floor)	23.60	23.85	0.24
PR23 (4)	Proposed Receptor (4th Floor)	23.62	23.87	0.24
PR24 (4)	Proposed Receptor (4th Floor)	23.83	24.06	0.23
PR1 (5)	Proposed Receptor (5th Floor)	23.83	24.06	0.23
PR2 (5)	Proposed Receptor (5th Floor)	23.14	23.34	0.20
PR3 (5)	Proposed Receptor (5th Floor)	22.26	22.46	0.19
PR4 (5)	Proposed Receptor (5th Floor)	22.22	22.42	0.19
PR5 (5)	Proposed Receptor (5th Floor)	22.25	22.45	0.19
PR9 (5)	Proposed Receptor (5th Floor)	22.26	22.46	0.19

Receptor		NO_2 (µg/m^3)		
		No development 2017	With development 2017	Development Contribution
PR10 (5)	Proposed Receptor (5th Floor)	23.00	23.21	0.21
PR11 (5)	Proposed Receptor (5th Floor)	22.89	23.09	0.20
PR12 (5)	Proposed Receptor (5th Floor)	22.85	23.06	0.21
PR13 (5)	Proposed Receptor (5th Floor)	22.84	23.05	0.21
PR14 (5)	Proposed Receptor (5th Floor)	22.84	23.04	0.20
PR15 (5)	Proposed Receptor (5th Floor)	22.79	23.00	0.20
PR16 (5)	Proposed Receptor (5th Floor)	22.78	22.99	0.20
PR17 (5)	Proposed Receptor (5th Floor)	22.74	22.94	0.19
PR18 (5)	Proposed Receptor (5th Floor)	22.73	22.93	0.19
PR19 (5)	Proposed Receptor (5th Floor)	22.95	23.14	0.19
PR20 (5)	Proposed Receptor (5th Floor)	22.98	23.18	0.20
PR21 (5)	Proposed Receptor (5th Floor)	23.00	23.20	0.20
PR22 (5)	Proposed Receptor (5th Floor)	23.02	23.22	0.20
PR23 (5)	Proposed Receptor (5th Floor)	23.03	23.23	0.20
PR24 (5)	Proposed Receptor (5th Floor)	23.14	23.34	0.20
PR1 (6)	Proposed Receptor (6th Floor)	23.13	23.33	0.20
PR2 (6)	Proposed Receptor (6th Floor)	22.51	22.68	0.17
PR3 (6)	Proposed Receptor (6th Floor)	21.64	21.80	0.16
PR4 (6)	Proposed Receptor (6th Floor)	21.61	21.77	0.16
PR5 (6)	Proposed Receptor (6th Floor)	21.64	21.80	0.16
PR9 (6)	Proposed Receptor (6th Floor)	21.64	21.80	0.16
PR10 (6)	Proposed Receptor (6th Floor)	22.43	22.60	0.17
PR11 (6)	Proposed Receptor (6th Floor)	22.33	22.49	0.16
PR12 (6)	Proposed Receptor (6th Floor)	22.32	22.48	0.16
PR13 (6)	Proposed Receptor (6th Floor)	22.33	22.50	0.17
PR14 (6)	Proposed Receptor (6th Floor)	22.34	22.50	0.16
PR15 (6)	Proposed Receptor (6th Floor)	22.33	22.50	0.17
PR16 (6)	Proposed Receptor (6th Floor)	22.33	22.50	0.17
PR17 (6)	Proposed Receptor (6th Floor)	22.31	22.48	0.17
PR18 (6)	Proposed Receptor (6th Floor)	22.31	22.47	0.16
PR19 (6)	Proposed Receptor (6th Floor)	22.46	22.63	0.17
PR20 (6)	Proposed Receptor (6th Floor)	22.47	22.64	0.17
PR21 (6)	Proposed Receptor (6th Floor)	22.48	22.65	0.17
PR22 (6)	Proposed Receptor (6th Floor)	22.48	22.65	0.17
PR23 (6)	Proposed Receptor (6th Floor)	22.47	22.64	0.17
PR24 (6)	Proposed Receptor (6th Floor)	22.55	22.71	0.16
PR1 (7)	Proposed Receptor (7th Floor)	22.54	22.71	0.17
PR2 (7)	Proposed Receptor (7th Floor)	22.01	22.15	0.14
PR3 (7)	Proposed Receptor (7th Floor)	21.13	21.27	0.14
PR4 (7)	Proposed Receptor (7th Floor)	21.12	21.26	0.14
PR5 (7)	Proposed Receptor (7th Floor)	21.14	21.28	0.14
PR9 (7)	Proposed Receptor (7th Floor)	21.15	21.28	0.13
PR10 (7)	Proposed Receptor (7th Floor)	21.95	22.08	0.13
PR11 (7)	Proposed Receptor (7th Floor)	21.86	22.00	0.13
PR12 (7)	Proposed Receptor (7th Floor)	21.86	22.01	0.14
PR13 (7)	Proposed Receptor (7th Floor)	21.90	22.04	0.14
PR21 (7)	Proposed Receptor (7th Floor)	21.91	22.04	0.13
PR22 (7)	Proposed Receptor (7th Floor)	22.01	22.15	0.14

Receptor		NO_2 (µg/m^3)		
		No development 2017	With development 2017	Development Contribution
PR23 (7)	Proposed Receptor (7th Floor)	22.00	22.14	0.14
PR24 (7)	Proposed Receptor (7th Floor)	22.06	22.20	0.14
PR1 (8)	Proposed Receptor (8th Floor)	22.05	22.19	0.14
PR2 (8)	Proposed Receptor (8th Floor)	21.59	21.70	0.11
PR3 (8)	Proposed Receptor (8th Floor)	20.73	20.84	0.11
PR4 (8)	Proposed Receptor (8th Floor)	20.73	20.84	0.11
PR5 (8)	Proposed Receptor (8th Floor)	20.74	20.86	0.12
PR23 (8)	Proposed Receptor (8th Floor)	20.75	20.86	0.11
PR24 (8)	Proposed Receptor (8th Floor)	21.64	21.75	0.11
PR1 (9)	Proposed Receptor (9th Floor)	21.63	21.74	0.11
PR2 (9)	Proposed Receptor (9th Floor)	21.25	21.35	0.10
PR3 (9)	Proposed Receptor (9th Floor)	20.39	20.49	0.09
PR4 (9)	Proposed Receptor (9th Floor)	20.39	20.50	0.10
PR5 (9)	Proposed Receptor (9th Floor)	20.40	20.51	0.10
PR23 (9)	Proposed Receptor (9th Floor)	20.42	20.51	0.09
PR24 (9)	Proposed Receptor (9th Floor)	21.29	21.39	0.10
PR1 (10)	Proposed Receptor (10th Floor)	21.29	21.38	0.09
PR2 (10)	Proposed Receptor (10th Floor)	20.97	21.05	0.08
PR3 (10)	Proposed Receptor (10th Floor)	20.11	20.19	0.08
PR1 (11)	Proposed Receptor (11th Floor)	20.12	20.20	0.08
PR2 (11)	Proposed Receptor (11th Floor)	20.73	20.80	0.07
PR3 (11)	Proposed Receptor (11th Floor)	19.88	19.95	0.07
Annual Mean AQO not to be exceeded		**40 µg/m^3**		

Table C7 Significance of Effects at Proposed Receptors (NO_2)

NO_2 Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m³)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
PR1 (1)	0.38	1%	<75% of AQAL	Negligible
PR2 (1)	0.40	1%	<75% of AQAL	Negligible
PR3 (1)	0.43	1%	<75% of AQAL	Negligible
PR4 (1)	0.42	1%	<75% of AQAL	Negligible
PR5 (1)	0.42	1%	<75% of AQAL	Negligible
PR1 (2)	0.32	1%	<75% of AQAL	Negligible
PR2 (2)	0.34	1%	<75% of AQAL	Negligible
PR3 (2)	0.34	1%	<75% of AQAL	Negligible
PR4 (2)	0.35	1%	<75% of AQAL	Negligible
PR5 (2)	0.34	1%	<75% of AQAL	Negligible
PR6 (2)	0.33	1%	<75% of AQAL	Negligible
PR7 (2)	0.33	1%	<75% of AQAL	Negligible
PR8 (2)	0.33	1%	<75% of AQAL	Negligible
PR9 (2)	0.35	1%	<75% of AQAL	Negligible
PR10 (2)	0.38	1%	<75% of AQAL	Negligible
PR11 (2)	0.36	1%	<75% of AQAL	Negligible
PR12 (2)	0.33	1%	<75% of AQAL	Negligible
PR13 (2)	0.32	1%	<75% of AQAL	Negligible
PR14 (2)	0.31	1%	<75% of AQAL	Negligible

NO_2 Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m³)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
PR15 (2)	0.29	1%	<75% of AQAL	Negligible
PR17 (2)	0.28	1%	<75% of AQAL	Negligible
PR18 (2)	0.27	1%	<75% of AQAL	Negligible
PR19 (2)	0.27	1%	<75% of AQAL	Negligible
PR20 (2)	0.29	1%	<75% of AQAL	Negligible
PR21 (2)	0.30	1%	<75% of AQAL	Negligible
PR22 (2)	0.32	1%	<75% of AQAL	Negligible
PR1 (3)	0.32	1%	<75% of AQAL	Negligible
PR2 (3)	0.28	1%	<75% of AQAL	Negligible
PR3 (3)	0.28	1%	<75% of AQAL	Negligible
PR4 (3)	0.27	1%	<75% of AQAL	Negligible
PR5 (3)	0.28	1%	<75% of AQAL	Negligible
PR6 (3)	0.28	1%	<75% of AQAL	Negligible
PR7 (3)	0.28	1%	<75% of AQAL	Negligible
PR8 (3)	0.28	1%	<75% of AQAL	Negligible
PR9 (3)	0.29	1%	<75% of AQAL	Negligible
PR10 (3)	0.30	1%	<75% of AQAL	Negligible
PR11 (3)	0.32	1%	<75% of AQAL	Negligible
PR12 (3)	0.30	1%	<75% of AQAL	Negligible
PR13 (3)	0.29	1%	<75% of AQAL	Negligible
PR14 (3)	0.28	1%	<75% of AQAL	Negligible
PR15 (3)	0.27	1%	<75% of AQAL	Negligible
PR16 (3)	0.26	1%	<75% of AQAL	Negligible
PR17 (3)	0.25	1%	<75% of AQAL	Negligible
PR18 (3)	0.25	1%	<75% of AQAL	Negligible
PR19 (3)	0.24	1%	<75% of AQAL	Negligible
PR20 (3)	0.26	1%	<75% of AQAL	Negligible
PR21 (3)	0.27	1%	<75% of AQAL	Negligible
PR22 (3)	0.28	1%	<75% of AQAL	Negligible
PR23 (3)	0.28	1%	<75% of AQAL	Negligible
PR24 (3)	0.28	1%	<75% of AQAL	Negligible
PR1 (4)	0.27	1%	<75% of AQAL	Negligible
PR2 (4)	0.23	1%	<75% of AQAL	Negligible
PR3 (4)	0.23	1%	<75% of AQAL	Negligible
PR4 (4)	0.22	1%	<75% of AQAL	Negligible
PR5 (4)	0.23	1%	<75% of AQAL	Negligible
PR6 (4)	0.23	1%	<75% of AQAL	Negligible
PR7 (4)	0.24	1%	<75% of AQAL	Negligible
PR8 (4)	0.24	1%	<75% of AQAL	Negligible
PR9 (4)	0.25	1%	<75% of AQAL	Negligible
PR10 (4)	0.24	1%	<75% of AQAL	Negligible
PR11 (4)	0.25	1%	<75% of AQAL	Negligible
PR12 (4)	0.25	1%	<75% of AQAL	Negligible
PR13 (4)	0.24	1%	<75% of AQAL	Negligible
PR14 (4)	0.24	1%	<75% of AQAL	Negligible
PR15 (4)	0.23	1%	<75% of AQAL	Negligible
PR16 (4)	0.23	1%	<75% of AQAL	Negligible
PR17 (4)	0.23	1%	<75% of AQAL	Negligible

NO_2 Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m³)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
PR18 (4)	0.22	1%	<75% of AQAL	Negligible
PR19 (4)	0.22	1%	<75% of AQAL	Negligible
PR20 (4)	0.23	1%	<75% of AQAL	Negligible
PR21 (4)	0.24	1%	<75% of AQAL	Negligible
PR22 (4)	0.24	1%	<75% of AQAL	Negligible
PR23 (4)	0.24	1%	<75% of AQAL	Negligible
PR24 (4)	0.23	1%	<75% of AQAL	Negligible
PR1 (5)	0.23	1%	<75% of AQAL	Negligible
PR2 (5)	0.20	1%	<75% of AQAL	Negligible
PR3 (5)	0.19	0%	<75% of AQAL	Negligible
PR4 (5)	0.19	0%	<75% of AQAL	Negligible
PR5 (5)	0.19	0%	<75% of AQAL	Negligible
PR9 (5)	0.19	0%	<75% of AQAL	Negligible
PR10 (5)	0.21	1%	<75% of AQAL	Negligible
PR11 (5)	0.20	1%	<75% of AQAL	Negligible
PR12 (5)	0.21	1%	<75% of AQAL	Negligible
PR13 (5)	0.21	1%	<75% of AQAL	Negligible
PR14 (5)	0.20	1%	<75% of AQAL	Negligible
PR15 (5)	0.20	1%	<75% of AQAL	Negligible
PR16 (5)	0.20	1%	<75% of AQAL	Negligible
PR17 (5)	0.19	0%	<75% of AQAL	Negligible
PR18 (5)	0.19	0%	<75% of AQAL	Negligible
PR19 (5)	0.19	0%	<75% of AQAL	Negligible
PR20 (5)	0.20	1%	<75% of AQAL	Negligible
PR21 (5)	0.20	1%	<75% of AQAL	Negligible
PR22 (5)	0.20	1%	<75% of AQAL	Negligible
PR23 (5)	0.20	1%	<75% of AQAL	Negligible
PR24 (5)	0.20	1%	<75% of AQAL	Negligible
PR1 (6)	0.20	1%	<75% of AQAL	Negligible
PR2 (6)	0.17	0%	<75% of AQAL	Negligible
PR3 (6)	0.16	0%	<75% of AQAL	Negligible
PR4 (6)	0.16	0%	<75% of AQAL	Negligible
PR5 (6)	0.16	0%	<75% of AQAL	Negligible
PR9 (6)	0.16	0%	<75% of AQAL	Negligible
PR10 (6)	0.17	0%	<75% of AQAL	Negligible
PR11 (6)	0.16	0%	<75% of AQAL	Negligible
PR12 (6)	0.16	0%	<75% of AQAL	Negligible
PR13 (6)	0.17	0%	<75% of AQAL	Negligible
PR14 (6)	0.16	0%	<75% of AQAL	Negligible
PR15 (6)	0.17	0%	<75% of AQAL	Negligible
PR16 (6)	0.17	0%	<75% of AQAL	Negligible
PR17 (6)	0.17	0%	<75% of AQAL	Negligible
PR18 (6)	0.16	0%	<75% of AQAL	Negligible
PR19 (6)	0.17	0%	<75% of AQAL	Negligible
PR20 (6)	0.17	0%	<75% of AQAL	Negligible
PR21 (6)	0.17	0%	<75% of AQAL	Negligible
PR22 (6)	0.17	0%	<75% of AQAL	Negligible
PR23 (6)	0.17	0%	<75% of AQAL	Negligible

NO_2 Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m³)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
PR24 (6)	0.16	0%	<75% of AQAL	Negligible
PR1 (7)	0.17	0%	<75% of AQAL	Negligible
PR2 (7)	0.14	0%	<75% of AQAL	Negligible
PR3 (7)	0.14	0%	<75% of AQAL	Negligible
PR4 (7)	0.14	0%	<75% of AQAL	Negligible
PR5 (7)	0.14	0%	<75% of AQAL	Negligible
PR9 (7)	0.13	0%	<75% of AQAL	Negligible
PR10 (7)	0.13	0%	<75% of AQAL	Negligible
PR11 (7)	0.13	0%	<75% of AQAL	Negligible
PR12 (7)	0.14	0%	<75% of AQAL	Negligible
PR13 (7)	0.14	0%	<75% of AQAL	Negligible
PR21 (7)	0.13	0%	<75% of AQAL	Negligible
PR22 (7)	0.14	0%	<75% of AQAL	Negligible
PR23 (7)	0.14	0%	<75% of AQAL	Negligible
PR24 (7)	0.14	0%	<75% of AQAL	Negligible
PR1 (8)	0.14	0%	<75% of AQAL	Negligible
PR2 (8)	0.11	0%	<75% of AQAL	Negligible
PR3 (8)	0.11	0%	<75% of AQAL	Negligible
PR4 (8)	0.11	0%	<75% of AQAL	Negligible
PR5 (8)	0.12	0%	<75% of AQAL	Negligible
PR23 (8)	0.11	0%	<75% of AQAL	Negligible
PR24 (8)	0.11	0%	<75% of AQAL	Negligible
PR1 (9)	0.11	0%	<75% of AQAL	Negligible
PR2 (9)	0.10	0%	<75% of AQAL	Negligible
PR3 (9)	0.09	0%	<75% of AQAL	Negligible
PR4 (9)	0.10	0%	<75% of AQAL	Negligible
PR5 (9)	0.10	0%	<75% of AQAL	Negligible
PR23 (9)	0.09	0%	<75% of AQAL	Negligible
PR24 (9)	0.10	0%	<75% of AQAL	Negligible
PR1 (10)	0.09	0%	<75% of AQAL	Negligible
PR2 (10)	0.08	0%	<75% of AQAL	Negligible
PR3 (10)	0.08	0%	<75% of AQAL	Negligible
PR1 (11)	0.08	0%	<75% of AQAL	Negligible
PR2 (11)	0.07	0%	<75% of AQAL	Negligible
PR3 (11)	0.07	0%	<75% of AQAL	Negligible
0% means a change of <0.5%				

Table C8 Predicted Change in PM_{10} with Baseline Year Emissions Factor at Proposed Receptor Locations

Receptor		PM_{10} (µg/m³)		
		No development 2017	With development 2017	Development Contribution
PR1 (1)	Proposed Receptor (1st Floor)	19.79	19.86	0.06
PR2 (1)	Proposed Receptor (1st Floor)	19.79	19.86	0.07
PR3 (1)	Proposed Receptor (1st Floor)	20.02	20.09	0.08
PR4 (1)	Proposed Receptor (1st Floor)	19.95	20.03	0.08

Receptor		PM_{10} (µg/m^3)		
		No development 2017	With development 2017	Development Contribution
PR5 (1)	Proposed Receptor (1st Floor)	19.94	20.02	0.08
PR1 (2)	Proposed Receptor (2nd Floor)	19.61	19.67	0.06
PR2 (2)	Proposed Receptor (2nd Floor)	19.51	19.57	0.06
PR3 (2)	Proposed Receptor (2nd Floor)	19.59	19.65	0.06
PR4 (2)	Proposed Receptor (2nd Floor)	19.57	19.63	0.06
PR5 (2)	Proposed Receptor (2nd Floor)	19.57	19.63	0.06
PR6 (2)	Proposed Receptor (2nd Floor)	19.53	19.58	0.05
PR7 (2)	Proposed Receptor (2nd Floor)	19.49	19.54	0.05
PR8 (2)	Proposed Receptor (2nd Floor)	19.47	19.53	0.05
PR9 (2)	Proposed Receptor (2nd Floor)	19.45	19.50	0.06
PR10 (2)	Proposed Receptor (2nd Floor)	19.45	19.51	0.06
PR11 (2)	Proposed Receptor (2nd Floor)	19.39	19.45	0.06
PR12 (2)	Proposed Receptor (2nd Floor)	19.35	19.40	0.05
PR13 (2)	Proposed Receptor (2nd Floor)	19.33	19.39	0.05
PR14 (2)	Proposed Receptor (2nd Floor)	19.30	19.35	0.05
PR15 (2)	Proposed Receptor (2nd Floor)	19.29	19.33	0.05
PR17 (2)	Proposed Receptor (2nd Floor)	19.26	19.30	0.04
PR18 (2)	Proposed Receptor (2nd Floor)	19.25	19.30	0.04
PR19 (2)	Proposed Receptor (2nd Floor)	19.33	19.37	0.04
PR20 (2)	Proposed Receptor (2nd Floor)	19.36	19.40	0.05
PR21 (2)	Proposed Receptor (2nd Floor)	19.37	19.42	0.05
PR22 (2)	Proposed Receptor (2nd Floor)	19.40	19.45	0.05
PR1 (3)	Proposed Receptor (3rd Floor)	19.41	19.46	0.05
PR2 (3)	Proposed Receptor (3rd Floor)	19.43	19.47	0.05
PR3 (3)	Proposed Receptor (3rd Floor)	19.27	19.32	0.05
PR4 (3)	Proposed Receptor (3rd Floor)	19.29	19.33	0.05
PR5 (3)	Proposed Receptor (3rd Floor)	19.28	19.33	0.05
PR6 (3)	Proposed Receptor (3rd Floor)	19.28	19.33	0.05
PR7 (3)	Proposed Receptor (3rd Floor)	19.39	19.43	0.05
PR8 (3)	Proposed Receptor (3rd Floor)	19.37	19.41	0.05
PR9 (3)	Proposed Receptor (3rd Floor)	19.36	19.40	0.05
PR10 (3)	Proposed Receptor (3rd Floor)	19.33	19.38	0.05
PR11 (3)	Proposed Receptor (3rd Floor)	19.32	19.37	0.05
PR12 (3)	Proposed Receptor (3rd Floor)	19.28	19.33	0.05
PR13 (3)	Proposed Receptor (3rd Floor)	19.26	19.30	0.04
PR14 (3)	Proposed Receptor (3rd Floor)	19.25	19.29	0.04
PR15 (3)	Proposed Receptor (3rd Floor)	19.23	19.27	0.04
PR16 (3)	Proposed Receptor (3rd Floor)	19.22	19.26	0.04
PR17 (3)	Proposed Receptor (3rd Floor)	19.20	19.24	0.04
PR18 (3)	Proposed Receptor (3rd Floor)	19.19	19.23	0.04
PR19 (3)	Proposed Receptor (3rd Floor)	19.26	19.30	0.04
PR20 (3)	Proposed Receptor (3rd Floor)	19.27	19.32	0.04
PR21 (3)	Proposed Receptor (3rd Floor)	19.28	19.33	0.04
PR22 (3)	Proposed Receptor (3rd Floor)	19.30	19.35	0.04
PR23 (3)	Proposed Receptor (3rd Floor)	19.31	19.36	0.04
PR24 (3)	Proposed Receptor (3rd Floor)	19.38	19.42	0.04
PR1 (4)	Proposed Receptor (4th Floor)	19.39	19.43	0.04
PR2 (4)	Proposed Receptor (4th Floor)	19.27	19.31	0.04

Receptor		PM_{10} (µg/m^3)		
		No development 2017	With development 2017	Development Contribution
PR3 (4)	Proposed Receptor (4th Floor)	19.09	19.13	0.04
PR4 (4)	Proposed Receptor (4th Floor)	19.09	19.12	0.04
PR5 (4)	Proposed Receptor (4th Floor)	19.09	19.13	0.04
PR6 (4)	Proposed Receptor (4th Floor)	19.09	19.13	0.04
PR7 (4)	Proposed Receptor (4th Floor)	19.25	19.29	0.04
PR8 (4)	Proposed Receptor (4th Floor)	19.24	19.28	0.04
PR9 (4)	Proposed Receptor (4th Floor)	19.24	19.28	0.04
PR10 (4)	Proposed Receptor (4th Floor)	19.22	19.26	0.04
PR11 (4)	Proposed Receptor (4th Floor)	19.20	19.23	0.04
PR12 (4)	Proposed Receptor (4th Floor)	19.18	19.22	0.04
PR13 (4)	Proposed Receptor (4th Floor)	19.17	19.21	0.04
PR14 (4)	Proposed Receptor (4th Floor)	19.16	19.20	0.04
PR15 (4)	Proposed Receptor (4th Floor)	19.15	19.19	0.04
PR16 (4)	Proposed Receptor (4th Floor)	19.14	19.18	0.04
PR17 (4)	Proposed Receptor (4th Floor)	19.13	19.17	0.03
PR18 (4)	Proposed Receptor (4th Floor)	19.13	19.16	0.03
PR19 (4)	Proposed Receptor (4th Floor)	19.18	19.21	0.03
PR20 (4)	Proposed Receptor (4th Floor)	19.19	19.22	0.04
PR21 (4)	Proposed Receptor (4th Floor)	19.19	19.23	0.04
PR22 (4)	Proposed Receptor (4th Floor)	19.21	19.24	0.04
PR23 (4)	Proposed Receptor (4th Floor)	19.21	19.25	0.04
PR24 (4)	Proposed Receptor (4th Floor)	19.25	19.29	0.04
PR1 (5)	Proposed Receptor (5th Floor)	19.25	19.29	0.04
PR2 (5)	Proposed Receptor (5th Floor)	19.14	19.17	0.03
PR3 (5)	Proposed Receptor (5th Floor)	18.95	18.98	0.03
PR4 (5)	Proposed Receptor (5th Floor)	18.95	18.98	0.03
PR5 (5)	Proposed Receptor (5th Floor)	18.95	18.98	0.03
PR9 (5)	Proposed Receptor (5th Floor)	18.95	18.98	0.03
PR10 (5)	Proposed Receptor (5th Floor)	19.11	19.14	0.03
PR11 (5)	Proposed Receptor (5th Floor)	19.09	19.12	0.03
PR12 (5)	Proposed Receptor (5th Floor)	19.08	19.12	0.03
PR13 (5)	Proposed Receptor (5th Floor)	19.08	19.11	0.03
PR14 (5)	Proposed Receptor (5th Floor)	19.08	19.11	0.03
PR15 (5)	Proposed Receptor (5th Floor)	19.07	19.10	0.03
PR16 (5)	Proposed Receptor (5th Floor)	19.07	19.10	0.03
PR17 (5)	Proposed Receptor (5th Floor)	19.06	19.09	0.03
PR18 (5)	Proposed Receptor (5th Floor)	19.06	19.09	0.03
PR19 (5)	Proposed Receptor (5th Floor)	19.10	19.13	0.03
PR20 (5)	Proposed Receptor (5th Floor)	19.10	19.13	0.03
PR21 (5)	Proposed Receptor (5th Floor)	19.11	19.14	0.03
PR22 (5)	Proposed Receptor (5th Floor)	19.11	19.14	0.03
PR23 (5)	Proposed Receptor (5th Floor)	19.11	19.15	0.03
PR24 (5)	Proposed Receptor (5th Floor)	19.14	19.17	0.03
PR1 (6)	Proposed Receptor (6th Floor)	19.14	19.17	0.03
PR2 (6)	Proposed Receptor (6th Floor)	19.04	19.07	0.03
PR3 (6)	Proposed Receptor (6th Floor)	18.85	18.88	0.03
PR4 (6)	Proposed Receptor (6th Floor)	18.85	18.87	0.03
PR5 (6)	Proposed Receptor (6th Floor)	18.85	18.87	0.03

Receptor		PM_{10} (µg/m^3)		
		No development 2017	With development 2017	Development Contribution
PR9 (6)	Proposed Receptor (6th Floor)	18.85	18.88	0.03
PR10 (6)	Proposed Receptor (6th Floor)	19.02	19.05	0.03
PR11 (6)	Proposed Receptor (6th Floor)	19.01	19.03	0.03
PR12 (6)	Proposed Receptor (6th Floor)	19.00	19.03	0.03
PR13 (6)	Proposed Receptor (6th Floor)	19.00	19.03	0.03
PR14 (6)	Proposed Receptor (6th Floor)	19.00	19.03	0.03
PR15 (6)	Proposed Receptor (6th Floor)	19.00	19.03	0.03
PR16 (6)	Proposed Receptor (6th Floor)	19.00	19.03	0.03
PR17 (6)	Proposed Receptor (6th Floor)	19.00	19.02	0.03
PR18 (6)	Proposed Receptor (6th Floor)	19.00	19.02	0.03
PR19 (6)	Proposed Receptor (6th Floor)	19.02	19.05	0.03
PR20 (6)	Proposed Receptor (6th Floor)	19.03	19.05	0.03
PR21 (6)	Proposed Receptor (6th Floor)	19.03	19.05	0.03
PR22 (6)	Proposed Receptor (6th Floor)	19.03	19.05	0.03
PR23 (6)	Proposed Receptor (6th Floor)	19.03	19.06	0.03
PR24 (6)	Proposed Receptor (6th Floor)	19.04	19.07	0.03
PR1 (7)	Proposed Receptor (7th Floor)	19.04	19.07	0.03
PR2 (7)	Proposed Receptor (7th Floor)	18.96	18.98	0.02
PR3 (7)	Proposed Receptor (7th Floor)	18.77	18.79	0.02
PR4 (7)	Proposed Receptor (7th Floor)	18.77	18.79	0.02
PR5 (7)	Proposed Receptor (7th Floor)	18.77	18.79	0.02
PR9 (7)	Proposed Receptor (7th Floor)	18.77	18.79	0.02
PR10 (7)	Proposed Receptor (7th Floor)	18.95	18.97	0.02
PR11 (7)	Proposed Receptor (7th Floor)	18.93	18.96	0.02
PR12 (7)	Proposed Receptor (7th Floor)	18.93	18.95	0.02
PR13 (7)	Proposed Receptor (7th Floor)	18.94	18.96	0.02
PR21 (7)	Proposed Receptor (7th Floor)	18.94	18.96	0.02
PR22 (7)	Proposed Receptor (7th Floor)	18.95	18.98	0.02
PR23 (7)	Proposed Receptor (7th Floor)	18.95	18.98	0.02
PR24 (7)	Proposed Receptor (7th Floor)	18.96	18.99	0.02
PR1 (8)	Proposed Receptor (8th Floor)	18.96	18.98	0.02
PR2 (8)	Proposed Receptor (8th Floor)	18.89	18.91	0.02
PR3 (8)	Proposed Receptor (8th Floor)	18.71	18.72	0.02
PR4 (8)	Proposed Receptor (8th Floor)	18.71	18.72	0.02
PR5 (8)	Proposed Receptor (8th Floor)	18.71	18.73	0.02
PR23 (8)	Proposed Receptor (8th Floor)	18.71	18.73	0.02
PR24 (8)	Proposed Receptor (8th Floor)	18.90	18.92	0.02
PR1 (9)	Proposed Receptor (9th Floor)	18.90	18.92	0.02
PR2 (9)	Proposed Receptor (9th Floor)	18.84	18.86	0.01
PR3 (9)	Proposed Receptor (9th Floor)	18.65	18.67	0.01
PR4 (9)	Proposed Receptor (9th Floor)	18.66	18.67	0.02
PR5 (9)	Proposed Receptor (9th Floor)	18.66	18.67	0.02
PR23 (9)	Proposed Receptor (9th Floor)	18.66	18.67	0.02
PR24 (9)	Proposed Receptor (9th Floor)	18.85	18.86	0.02
PR1 (10)	Proposed Receptor (10th Floor)	18.84	18.86	0.02
PR2 (10)	Proposed Receptor (10th Floor)	18.80	18.81	0.01
PR3 (10)	Proposed Receptor (10th Floor)	18.61	18.62	0.01
PR1 (11)	Proposed Receptor (11th Floor)	18.61	18.63	0.01

Receptor		PM_{10} (µg/m^3)		
		No development 2017	With development 2017	Development Contribution
PR2 (11)	Proposed Receptor (11th Floor)	18.76	18.77	0.01
PR3 (11)	Proposed Receptor (11th Floor)	18.58	18.59	0.01
Annual Mean AQO not to be exceeded		**40 µg/m^3**		

Table C9 Significance of Effects at Proposed Receptors (PM_{10})

PM_{10} Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m^3)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
PR1 (1)	0.06	0%	<75% of AQAL	Negligible
PR2 (1)	0.07	0%	<75% of AQAL	Negligible
PR3 (1)	0.08	0%	<75% of AQAL	Negligible
PR4 (1)	0.08	0%	<75% of AQAL	Negligible
PR5 (1)	0.08	0%	<75% of AQAL	Negligible
PR1 (2)	0.06	0%	<75% of AQAL	Negligible
PR2 (2)	0.06	0%	<75% of AQAL	Negligible
PR3 (2)	0.06	0%	<75% of AQAL	Negligible
PR4 (2)	0.06	0%	<75% of AQAL	Negligible
PR5 (2)	0.06	0%	<75% of AQAL	Negligible
PR6 (2)	0.05	0%	<75% of AQAL	Negligible
PR7 (2)	0.05	0%	<75% of AQAL	Negligible
PR8 (2)	0.05	0%	<75% of AQAL	Negligible
PR9 (2)	0.06	0%	<75% of AQAL	Negligible
PR10 (2)	0.06	0%	<75% of AQAL	Negligible
PR11 (2)	0.06	0%	<75% of AQAL	Negligible
PR12 (2)	0.05	0%	<75% of AQAL	Negligible
PR13 (2)	0.05	0%	<75% of AQAL	Negligible
PR14 (2)	0.05	0%	<75% of AQAL	Negligible
PR15 (2)	0.05	0%	<75% of AQAL	Negligible
PR17 (2)	0.04	0%	<75% of AQAL	Negligible
PR18 (2)	0.04	0%	<75% of AQAL	Negligible
PR19 (2)	0.04	0%	<75% of AQAL	Negligible
PR20 (2)	0.05	0%	<75% of AQAL	Negligible
PR21 (2)	0.05	0%	<75% of AQAL	Negligible
PR22 (2)	0.05	0%	<75% of AQAL	Negligible
PR1 (3)	0.05	0%	<75% of AQAL	Negligible
PR2 (3)	0.05	0%	<75% of AQAL	Negligible
PR3 (3)	0.05	0%	<75% of AQAL	Negligible
PR4 (3)	0.05	0%	<75% of AQAL	Negligible
PR5 (3)	0.05	0%	<75% of AQAL	Negligible
PR6 (3)	0.05	0%	<75% of AQAL	Negligible
PR7 (3)	0.05	0%	<75% of AQAL	Negligible
PR8 (3)	0.05	0%	<75% of AQAL	Negligible
PR9 (3)	0.05	0%	<75% of AQAL	Negligible
PR10 (3)	0.05	0%	<75% of AQAL	Negligible
PR11 (3)	0.05	0%	<75% of AQAL	Negligible
PR12 (3)	0.05	0%	<75% of AQAL	Negligible
PR13 (3)	0.04	0%	<75% of AQAL	Negligible

PM_{10} Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m³)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
PR14 (3)	0.04	0%	<75% of AQAL	Negligible
PR15 (3)	0.04	0%	<75% of AQAL	Negligible
PR16 (3)	0.04	0%	<75% of AQAL	Negligible
PR17 (3)	0.04	0%	<75% of AQAL	Negligible
PR18 (3)	0.04	0%	<75% of AQAL	Negligible
PR19 (3)	0.04	0%	<75% of AQAL	Negligible
PR20 (3)	0.04	0%	<75% of AQAL	Negligible
PR21 (3)	0.04	0%	<75% of AQAL	Negligible
PR22 (3)	0.04	0%	<75% of AQAL	Negligible
PR23 (3)	0.04	0%	<75% of AQAL	Negligible
PR24 (3)	0.04	0%	<75% of AQAL	Negligible
PR1 (4)	0.04	0%	<75% of AQAL	Negligible
PR2 (4)	0.04	0%	<75% of AQAL	Negligible
PR3 (4)	0.04	0%	<75% of AQAL	Negligible
PR4 (4)	0.04	0%	<75% of AQAL	Negligible
PR5 (4)	0.04	0%	<75% of AQAL	Negligible
PR6 (4)	0.04	0%	<75% of AQAL	Negligible
PR7 (4)	0.04	0%	<75% of AQAL	Negligible
PR8 (4)	0.04	0%	<75% of AQAL	Negligible
PR9 (4)	0.04	0%	<75% of AQAL	Negligible
PR10 (4)	0.04	0%	<75% of AQAL	Negligible
PR11 (4)	0.04	0%	<75% of AQAL	Negligible
PR12 (4)	0.04	0%	<75% of AQAL	Negligible
PR13 (4)	0.04	0%	<75% of AQAL	Negligible
PR14 (4)	0.04	0%	<75% of AQAL	Negligible
PR15 (4)	0.04	0%	<75% of AQAL	Negligible
PR16 (4)	0.04	0%	<75% of AQAL	Negligible
PR17 (4)	0.03	0%	<75% of AQAL	Negligible
PR18 (4)	0.03	0%	<75% of AQAL	Negligible
PR19 (4)	0.03	0%	<75% of AQAL	Negligible
PR20 (4)	0.04	0%	<75% of AQAL	Negligible
PR21 (4)	0.04	0%	<75% of AQAL	Negligible
PR22 (4)	0.04	0%	<75% of AQAL	Negligible
PR23 (4)	0.04	0%	<75% of AQAL	Negligible
PR24 (4)	0.04	0%	<75% of AQAL	Negligible
PR1 (5)	0.04	0%	<75% of AQAL	Negligible
PR2 (5)	0.03	0%	<75% of AQAL	Negligible
PR3 (5)	0.03	0%	<75% of AQAL	Negligible
PR4 (5)	0.03	0%	<75% of AQAL	Negligible
PR5 (5)	0.03	0%	<75% of AQAL	Negligible
PR9 (5)	0.03	0%	<75% of AQAL	Negligible
PR10 (5)	0.03	0%	<75% of AQAL	Negligible
PR11 (5)	0.03	0%	<75% of AQAL	Negligible
PR12 (5)	0.03	0%	<75% of AQAL	Negligible
PR13 (5)	0.03	0%	<75% of AQAL	Negligible
PR14 (5)	0.03	0%	<75% of AQAL	Negligible
PR15 (5)	0.03	0%	<75% of AQAL	Negligible
PR16 (5)	0.03	0%	<75% of AQAL	Negligible

PM_{10} Significance Effects at Key Receptors				
Receptor	Change Due to Development (DS-DM) (µg/m³)	% Change in Concentration Relative to AQAL	% Annual Mean Concentration in Assessment Year	Significance
PR17 (5)	0.03	0%	<75% of AQAL	Negligible
PR18 (5)	0.03	0%	<75% of AQAL	Negligible
PR19 (5)	0.03	0%	<75% of AQAL	Negligible
PR20 (5)	0.03	0%	<75% of AQAL	Negligible
PR21 (5)	0.03	0%	<75% of AQAL	Negligible
PR22 (5)	0.03	0%	<75% of AQAL	Negligible
PR23 (5)	0.03	0%	<75% of AQAL	Negligible
PR24 (5)	0.03	0%	<75% of AQAL	Negligible
PR1 (6)	0.03	0%	<75% of AQAL	Negligible
PR2 (6)	0.03	0%	<75% of AQAL	Negligible
PR3 (6)	0.03	0%	<75% of AQAL	Negligible
PR4 (6)	0.03	0%	<75% of AQAL	Negligible
PR5 (6)	0.03	0%	<75% of AQAL	Negligible
PR9 (6)	0.03	0%	<75% of AQAL	Negligible
PR10 (6)	0.03	0%	<75% of AQAL	Negligible
PR11 (6)	0.03	0%	<75% of AQAL	Negligible
PR12 (6)	0.03	0%	<75% of AQAL	Negligible
PR13 (6)	0.03	0%	<75% of AQAL	Negligible
PR14 (6)	0.03	0%	<75% of AQAL	Negligible
PR15 (6)	0.03	0%	<75% of AQAL	Negligible
PR16 (6)	0.03	0%	<75% of AQAL	Negligible
PR17 (6)	0.03	0%	<75% of AQAL	Negligible
PR18 (6)	0.03	0%	<75% of AQAL	Negligible
PR19 (6)	0.03	0%	<75% of AQAL	Negligible
PR20 (6)	0.03	0%	<75% of AQAL	Negligible
PR21 (6)	0.03	0%	<75% of AQAL	Negligible
PR22 (6)	0.03	0%	<75% of AQAL	Negligible
PR23 (6)	0.03	0%	<75% of AQAL	Negligible
PR24 (6)	0.03	0%	<75% of AQAL	Negligible
PR1 (7)	0.03	0%	<75% of AQAL	Negligible
PR2 (7)	0.02	0%	<75% of AQAL	Negligible
PR3 (7)	0.02	0%	<75% of AQAL	Negligible
PR4 (7)	0.02	0%	<75% of AQAL	Negligible
PR5 (7)	0.02	0%	<75% of AQAL	Negligible
PR9 (7)	0.02	0%	<75% of AQAL	Negligible
PR10 (7)	0.02	0%	<75% of AQAL	Negligible
PR11 (7)	0.02	0%	<75% of AQAL	Negligible
PR12 (7)	0.02	0%	<75% of AQAL	Negligible
PR13 (7)	0.02	0%	<75% of AQAL	Negligible
PR21 (7)	0.02	0%	<75% of AQAL	Negligible
PR22 (7)	0.02	0%	<75% of AQAL	Negligible
PR23 (7)	0.02	0%	<75% of AQAL	Negligible
PR24 (7)	0.02	0%	<75% of AQAL	Negligible
PR1 (8)	0.02	0%	<75% of AQAL	Negligible
PR2 (8)	0.02	0%	<75% of AQAL	Negligible
PR3 (8)	0.02	0%	<75% of AQAL	Negligible
PR4 (8)	0.02	0%	<75% of AQAL	Negligible
PR5 (8)	0.02	0%	<75% of AQAL	Negligible

PM_{10} Significance Effects at Key Receptors				
Receptor	**Change Due to Development (DS-DM) (µg/m³)**	**% Change in Concentration Relative to AQAL**	**% Annual Mean Concentration in Assessment Year**	**Significance**
PR23 (8)	0.02	0%	<75% of AQAL	Negligible
PR24 (8)	0.02	0%	<75% of AQAL	Negligible
PR1 (9)	0.02	0%	<75% of AQAL	Negligible
PR2 (9)	0.01	0%	<75% of AQAL	Negligible
PR3 (9)	0.01	0%	<75% of AQAL	Negligible
PR4 (9)	0.02	0%	<75% of AQAL	Negligible
PR5 (9)	0.02	0%	<75% of AQAL	Negligible
PR23 (9)	0.02	0%	<75% of AQAL	Negligible
PR24 (9)	0.02	0%	<75% of AQAL	Negligible
PR1 (10)	0.02	0%	<75% of AQAL	Negligible
PR2 (10)	0.01	0%	<75% of AQAL	Negligible
PR3 (10)	0.01	0%	<75% of AQAL	Negligible
PR1 (11)	0.01	0%	<75% of AQAL	Negligible
PR2 (11)	0.01	0%	<75% of AQAL	Negligible
PR3 (11)	0.01	0%	<75% of AQAL	Negligible
0% means a change of <0.5%				

As expected, the resultant levels are higher with the baseline year's traffic emissions factor used, however there are still ne exceedances of the AQO of 40