CONTENTS

6.1 INTRODUCTION

6.1.1 This addendum chapter of the ES, prepared by Wardell Armstrong LLP, comprises an update to original Air Quality ES Chapter (prepared in November 2014) by taking into consideration the following:

- Amendments to the Proposed Development;
- Revised traffic flow information (provided by the appointed transport consultant);
- Updated Cherwell District Council pollution data (2014); and
- Updated Institute of Air Quality Management and Environmental Protection UK guidance on planning for air quality: 'Land-Use Planning and Development Control: Planning for Air Quality (May 2015)'.

6.2 ASSESSMENT METHODOLOGY

Scope

6.2.1 The scope of the assessment remains as stated in the original ES chapter.

Data sources

6.2.2 The following sources of information have been used in the preparation of this report:

- Part IV Environment Act, Chapter 25, Air Quality, 1995;
- DEFRA, The UK National Air Quality Strategy, March 1997;
- The Air Quality Standards Regulations 2010;
- Department for Communities and Local Government, National Planning Policy Framework (NPPF), published March 2012;
- Department for the Environment, Food and Rural Affairs, Local Air Quality Management Technical Guidance LAQM.TG(09), published February 2009;
- Environment Protection UK (EPUK) Development Control: Planning for Air Quality (2010 Update), 2010;
- Institute of Air Quality Management (IAQM) guidance: 'Guidance on the Assessment of Dust from Demolition and Construction, published February 2014;
- Cherwell District Council, Air Quality Detailed Assessment – Hennef Way, Banbury, 2010;
- Ricardo-AEA, Further Assessment of Air Quality at Hennef Way, 2013;
- 2015 Updating and Screening Assessment for Cherwell District Council;
- The Cherwell Local Plan 2011 – 2031, July 2015; and
- Traffic flow information, provided by Jubb Consulting Engineers Limited (detailed in Appendix 5c).

Assessment Approach

Construction Phase – Construction Traffic

6.2.3 Detailed traffic flow information for the construction phase of the development is not available at this stage and therefore it is not possible to undertake a quantitative

assessment of the impact of these additional vehicles at existing sensitive receptor locations.

6.2.4 Construction traffic will access the Site via the proposed Site access from the A361 Bloxham Road. Given the existing high volume of traffic travelling along Bloxham Road, the number of additional vehicles associated with the construction phase of the development is not considered to be significant

6.2.5 and are not considered further within this chapter.

Construction Phase Assessment – Dust Emissions

6.2.6 Assessment of the impacts associated with dust and PM_{10} releases, during the construction phase of the development remain as reported in the original ES (2014).

Operational Phase Assessment – Road Traffic Emissions

Modelling of Road Traffic Emissions

6.2.7 The air dispersion model ADMS-Roads has been used to assess the potential impact of development generated traffic on local air quality at existing receptor locations. In addition, pollutant concentrations have also been predicted at the proposed sensitive areas of the development (i.e. at locations representative of the proposed residential dwellings).

6.2.8 The air dispersion model has been used to predict nitrogen dioxide (NO_2) and particulate matter (PM_{10} and $PM_{2.5}$) concentrations, as these are the pollutants most likely to exceed the air quality objectives.

6.2.9 Air dispersion modelling has been carried out to estimate pollutant concentrations, due to road traffic emissions, for two assessment years as follows:

- The verification and base year (2014): This is the most recent year for which traffic flow information, local monitored pollution data and meteorological data are available; and

- An appropriate future year: This is considered both without the development and with the development in place and for the purposes of this air quality assessment is assumed to be 2030.

Road Traffic Data

6.2.10 The ADMS-Roads model requires the input of detailed road traffic flow information for those routes which will be affected by the Proposed Development. The traffic flow information used in the assessment is included in Appendix 5c.

6.2.11 Detailed traffic flow information, for use in the ADMS-Roads air dispersion model, has been obtained from Jubb Consulting Engineers Limited, the appointed transport consultant for the Proposed Development.

6.2.12 Traffic flow information has been provided by the transport consultant as 24 hour Annual Average Daily Traffic (AADT) flows, with HGV percentages, for the following links:

- A361 Bloxham Road;
- A4260 Oxford Road;
- A361 Horsefair / North Bar Street / South Bar Street;
- A4269 Concord Avenue;
- A422 Hennef Way;
- Queensway;
- Southam Road;
- Springfield Avenue;
- Upper Windsor Street
- Link Road; and
- Proposed Site access from Bloxham Road.

6.2.13 The traffic flow information takes into consideration the following committed development:

- Bankside/College Fields – 237 dwellings;
- Oxford Road/Weeping Road – 833 dwellings;
- Oxford Road – 22 dwellings;
- Crouch Farm – 145 dwellings;

- Warwick Road/North Harwell Fields – 400 dwellings;
- West of Southam Road – 600 dwellings;
- West of Warwick Road – 300 dwellings;
- Bretch Hill – 400 dwellings;
- Land NE of Crouch Hill – 40 dwellings;
- Southam Road – 31 dwellings;
- Banbury Academy Land – 44 dwellings;
- Warwick Road/Foundary Street – 22 dwellings;
- Hightown Road – 34 dwellings;
- Christchurch Court – 43 dwellings;
- Tramway Road – 14 dwellings;
- South Bar Street – 13 dwellings;
- North west of Crouch Hill Road – 26 dwellings;
- Lincoln Close – 18 dwellings;
- Calthorpe Street – 15 dwellings;
- Warwick Road – 16 dwellings;
- The Fairway – 11 dwellings;
- Canalside – 700 dwellings;
- Bolton Road – 200 dwellings;
- South of Saltway (East) – 1,200 dwellings;
- South of Saltway (West) – 150 dwellings;
- Higham Way – 150 dwellings;
- Bankside Phase 2 – 590 dwellings;
- North of Hanwell Fields – 144 dwellings;
- Drayton Lodge Farm – 250 dwellings;
- Various sites (unspecified) – 429 dwellings;
- Bankside/College fields – 2,200m^2 (B1) employment;
- Banbury Gateway Retail Park – 27,432m^2 mixed use;
- Relocated Pro-Drive Factory to Hella Site – employment;
- Southam Road – 59,000 m^2 employment;
- Central M40 – 115,197m^2 employment; and
- NE M40 Junction 11 – 49 ha (3,500 jobs) employment.

6.2.14 The traffic flow information for the cumulative impact assessment also takes into consideration the following proposed development:

- Gladmans Scheme – 280 dwellings.

6.2.15 Air quality modelling has been carried out to predict pollutant concentrations, due to road traffic emissions, for a total of four scenarios:

- Scenario 1: 2014 Verification and Base Year;
- Scenario 2: 2030 Future Assessment Year, Without Development (i.e. Future Baseline + Committed Development Traffic); and
- Scenario 3: 2030 Future Assessment Year, With Development (i.e. Future Baseline + Traffic + Application Development Traffic) – No Link Road.
- Scenario 4: 2030 Future Assessment Year, With Development (i.e. Future Baseline + Traffic + Application Development Traffic) – With Link Road.
- Scenario 5: 2030 Future Assessment Year, With Development (i.e. Future Baseline + Application Development Traffic + 280 dwellings on Gladman land) – With Link Road.

6.2.16 The traffic data provided was for a 2031 Future Year. However, emission factors currently only go up to the year 2030. Therefore, the 2031 traffic data has been applied to the 2030 emission factors.

Meteorological Data

6.2.17 The meteorological data used in the air quality modelling has been provided by ADM Limited. Meteorological data has been obtained for 2014 from the Church Lawford recording station.

6.2.18 The Church Lawford station is located approximately 35km from the proposed development site. This recording station is considered to be the most representative of the conditions at the Site due to its location relative to the Site and similar altitude. The meteorological data provides hourly wind speed and direction information. The 2014 wind rose for Church Lawford is included in Appendix 5d.

Model Validation, Verification and Adjustment

6.2.19 Defra Local Air Quality Management Technical Guidance, 2009, (LAQM.TG(09)) recognises that model validation generally refers to detailed studies that have been carried out by the model supplier or a regulatory agency. The ADMS-Roads model has been validated by the supplier CERC.

6.2.20 Model verification is required to check the performance of the model at a local level. The verification of the ADMS-Roads model has been achieved by modelling concentrations at existing monitoring locations and comparing the modelled concentrations with the measured concentrations.

6.2.21 As there is no roadside continuous analyser located along the routes adjacent to the Site, bias-adjusted monitoring data from three representative diffusion tube locations has been used.

6.2.22 All three diffusion tubes are located 1m or more from the closest kerb and are therefore classed as roadside locations, in accordance with LAQM.TG(09).

6.2.23 NO_2 measurement data from 2014 has been used for the purposes of verification, as this is the most recent year for which bias-adjusted data is available. The monitoring data that has been used in the model verification procedure is detailed in Table 6.1.

Table 6.1 - 2014 NO_2 Diffusion Tube Data

Site Name	Grid Reference		NO_2 Annual Average with Bias Correction Applied* (2014)
	X	Y	
North Bar	445352	240744	39.60
Oxford Road / South Bar	445335	240094	37.60
Horsefair	445351	240578	42.40

6.2.24 It has not been possible to carry out verification for PM_{10} or $PM_{2.5}$ concentrations as monitoring data is not available in the vicinity of the site.

6.2.25 Further details of the model verification procedure are included in Appendix 5e. Uncorrected and corrected pollutant concentrations are included in Appendices 5f and 5g, respectively.

Significance Criteria

Construction Phase Assessment – Dust and Fine Particulate Matter Emissions

6.2.26 The methodology and significance criteria for assessment of construction phase impacts, on human and ecological receptors, remains as reported in the original ES chapter.

Operational Phase Assessment – Road Traffic Emissions

Assessing the Impact of a Proposed Development on Human Health

6.2.27 Guidance has been prepared by Environmental Protection UK (EPUK) and the IAQM with relation to the assessment of the air quality impacts of proposed developments and their significance[1].

6.2.28 The impact of a development is usually assessed at specific receptors, and takes into account both the long term background concentrations, in relation to the relevant Air Quality Assessment Level (AQAL) at these receptors, and the change with the development in place.

6.2.29 The impact descriptors for individual receptors are detailed in Table 6.2.

Table 6.2 – Impact descriptors for individual receptors

Long Term Average Concentration at Receptor in Assessment Year*	**Percentage Change in Concentration Relative to Air Quality Assessment Level (AQAL)***			
	1%	**2-5%**	**6-10%**	**>10**
75% or less 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% or more of AQAL	Moderate	Substantial	Substantial	Substantial
**Percentage pollutant concentrations have been rounded to whole numbers, to make it easier to assess the impact. Changes of 0% (i.e. less than 0.5% or 0.2µg/m^3) should be described as Negligible*				

[1] Environmental Protection UK and the Institute of Air Quality Management, Land-Use Planning and Development Control: Planning for Air Quality, May 2015

Determining the Significance of Effects

6.2.30 Impacts on air quality, whether adverse or beneficial, will have an effect on human health that can be judged as either 'significant' or 'not significant'.

6.2.31 Once the impact of the proposed development has been assessed for the individual impacts, the overall significance is determined using professional judgement. This takes into account a number of factors such as:

- The existing and future air quality in the absence of development;
- The extent of the current and future population exposure to the impacts; and
- The influence and validity of any assumptions adopted when undertaking the prediction of impacts.

6.2.32 A discussion of the impacts of the proposed development, and their significance, is included in 6.5 and 6.6 of this addendum chapter.

Uncertainties and Limitations

6.2.33 Traffic flow information for the construction phase of the development is not available at this stage and therefore it is not possible to undertake a quantitative assessment of the impact of these additional vehicles at existing sensitive receptor locations.

6.3 RELEVANT POLICY

Air Quality Standards and Objectives

Air quality standards and objectives, and national planning policy and guidance as reported in the original ES remain relevant.

Adopted Cherwell Local Plan (2015)

6.3.1 The Adopted Cherwell Local Plan (2015) identifies that one of Cherwell's key challenges to ensuring sustainable development is the need to consider the effects of development on air quality, including in relation to the Air Quality Management Area (AQMA) in Banbury and how development proposals can contribute towards improvements. Air quality assessments will also be required for development proposals that would be likely to have a significantly adverse impact on biodiversity by generating an increase in air pollution.

6.3.2 New housing needs to be provided in such a way that it minimises environmental impact, including through the elimination and control of pollution and the effective and efficient use of natural resources. Planning decisions can have an effect on travel to work, schools, noise and air quality, access to services, climate change and social networks which can all contribute to health and well-being. The local environment has a fundamental impact on the health and well-being of local people. By providing facilities such as local open space this allows for activities such as walking and cycling, promoting healthy lifestyles.

Cherwell District Council Local Air Quality Management Review and Assessment

6.3.3 Cherwell District Council (CDC) declared an Air Quality Management Area (AQMA), in 2010, for exceedences of the annual mean and hourly objectives for nitrogen dioxide (NO_2). The AQMA covers the A422 Hennef Way in the centre of Banbury, between the A4260 Concord Avenue and Ermont Way; approximately 2.8km to the north of the Proposed Development.

6.3.4 The 2009 Updating and Screening Assessment identified exceedances of the annual mean objective for NO_2 at the A361 Horsefair and Hennef Way in Banbury and at Queens Avenue in Bicester. The report concluded that air quality objectives are being achieved at all other monitoring locations throughout the district.

6.3.5 A Detailed Assessment was subsequently undertaken by CDC for Hennef Way in 2010 and the AQMA declared. The report also concluded that further monitoring should be undertaken along Hennef Way and at the closest areas of exposure, i.e. at the residential properties along Stroud Close and Fisher Close.

6.3.6 The 2011 Progress Report, published by CDC, identified the requirement for Detailed Assessments at Queens Avenue, Bicester and Horsefair, Banbury. Exceedances of the annual mean NO_2 objective were also identified on Bicester Road, Kidlington.

6.3.7 The 2012 Updating and Screening Assessment, and previous Detailed Assessments, identified the requirement to declare AQMAs for the following areas: Horsefair / North Bar (Banbury), Queens Avenue / Kings End (Bicester) and Bicester Road (Kidlington).

6.3.8 The 2014 CDC Progress Report identified potential exceedances of the annual mean NO_2 objective level along Bloxham Road, Oxford Road and North Bar within Banbury.

6.3.9 CDC undertakes air quality monitoring within the Cherwell district. The 2015 Updating and Screening Assessment reports that in 2014, CDC operated diffusion tube monitoring of NO_2 at 20 sites across the district.

6.3.10 The Proposed Development is not located within an existing AQMA. The closest roadside diffusion tubes to the Site are those located along the A4260 / B4100 Oxford Road and Horsefair. In 2014, these diffusion tubes measured annual mean concentrations of between 37.6µg/m^3 and 42.4µg/m^3.

6.4 BASELINE CONDITIONS

Operational Phase Assessment – Road Traffic Emissions

6.4.1 The traffic flow information for the baseline assessment considers committed developments outlined in 6.2.10.

Background Air Pollutant Concentrations

6.4.2 The ADMS assessment needs to take into account background concentrations upon which the local, traffic derived pollution is superimposed. The data may be derived through long term ambient measurements at background sites, remote from immediate sources of air pollution, or alternatively from the default concentration maps, which have been provided for use with the revised LAQM.TG(09) guidance.

6.4.3 CDC currently operates one background diffusion tube within Banbury. This is located on Cranleigh Close. It was considered that the urban background diffusion tube on Cranleigh Close was representative of background concentrations at the existing receptor locations along the A361 Bloxham Road (i.e. ESR 1-4 and 7) and the proposed receptor locations (PR 1-3). Therefore, the 2014 background NO_2 concentration has been obtained for the Cranleigh Close diffusion tube. The NO_x background concentration has been obtained using the Defra NO_x to NO_2 calculator. However, it was found that the 2014 background NO_x and NO_2 concentrations were higher for this grid square on the 2011 based default concentration maps provided by Defra on their Local Air Quality Management web pages (http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html). Therefore, for a worst case, robust approach, these background concentrations were used, and those of the diffusion tubes were discarded.

6.4.4 In the absence of data being available from a representative background continuous analyser, background PM_{10} and $PM_{2.5}$ concentrations have also been obtained from the 2011 based default concentration maps provided by Defra. As the receptors are located within more than one grid square, the highest PM_{10} and $PM_{2.5}$ concentration has been used in the assessment.

6.4.5 The background pollutant concentrations used in the assessment are detailed in Table 6.3 and 6.4.

Table 6.3 – 2014 Background NO_x, NO_2 and PM_{10} Concentrations Obtained from the 2011-based Defra Default Concentration Maps

Receptors	2014 Pollutant Concentrations (µg/m³)			
	Oxides of Nitrogen (NO_x)	Nitrogen Dioxide (NO_2)	Particulates	
			(PM_{10})	($PM_{2.5}$)
ESR 1 – 4 and 7 and PR 1-3	16.38	12.02	16.95	10.99
ESR 5, 8, 10 and 11	27.19	19.02	17.68	12.12
ESR 6 and 9	20.38	14.64	14.43	11.35

Table 6.4 – 2030 Background NO_x, NO_2 and PM_{10} Concentrations Obtained from the 2011-based Defra Default Concentration Maps

Receptors	2014 Pollutant Concentrations (µg/m³)			
	Oxides of Nitrogen (NO_x)	Nitrogen Dioxide (NO_2)	Particulates	
			(PM_{10})	($PM_{2.5}$)
ESR 1 – 4 and 7 and PR 1-3	10.46	7.27	15.96	10.13
ESR 5, 8, 10 and 11	22.67	16.23	16.47	11.03
ESR 6 and 9	15.96	15.35	15.35	10.38

Modelled Baseline Concentrations

6.4.6 The baseline assessment (i.e. Scenarios 1 and 2) has been carried out for the eleven existing sensitive receptors considered (ESR 1 to ESR 11). The uncorrected PM_{10} and $PM_{2.5}$, and corrected NO_2 concentrations are detailed in Table 6.5 and included in Appendices 5f and 5g, respectively.

Table 6.5 - Predicted NO_2, PM_{10} and $PM_{2.5}$ concentrations at Existing Sensitive Receptor Locations for 2014 and 2030 'Without Development' Scenarios

Receptor	Calculated Annual Mean Concentrations (µg/m³)					
	NO_2 (Corrected)*		PM_{10} (Uncorrected)		$PM_{2.5}$ (Uncorrected)	
	Scenario 1: 2014	Scenario 2: 2030	Scenario 1: 2014	Scenario 2: 2030	Scenario 1: 2014	Scenario 2: 2030
ESR 1	21.77	10.24	17.97	16.70	11.62	10.49

Receptor	Calculated Annual Mean Concentrations (µg/m^3)					
	NO_2 (Corrected)*		PM_{10} (Uncorrected)		$PM_{2.5}$ (Uncorrected)	
	Scenario 1: 2014	Scenario 2: 2030	Scenario 1: 2014	Scenario 2: 2030	Scenario 1: 2014	Scenario 2: 2030
ESR 2	25.99	11.42	18.44	17.08	11.91	10.69
ESR 3	22.20	10.38	18.01	16.75	11.65	10.51
ESR 4	28.91	13.68	18.42	17.51	11.92	10.92
ESR 5	44.54	23.92	21.24	18.47	13.52	12.05
ESR 6	37.90	20.43	18.36	16.50	12.57	10.95
ESR 7	25.36	11.33	18.34	17.05	11.85	10.67
ESR 8	40.53	22.20	21.13	18.24	13.43	11.93
ESR 9	26.99	18.05	17.59	16.15	12.06	10.76
ESR 10	34.20	18.71	20.61	17.35	13.10	10.78
ESR 11	34.04	19.84	18.73	17.74	12.76	10.99

** NO_2 concentrations obtained by inputting adjusted predicted road NO_x concentrations into the NO_x to NO_2 calculator in accordance with LAQM.TG(09).*

Scenario 1: Verification and Base Year 2014

6.4.7 The 2014 'baseline' annual mean NO_2 concentrations (corrected) are predicted to range from 21.77 to 44.54µg/m^3 for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for NO_2 (40µg/m^3) is predicted to occur at ESR 5 (9 Oxford Road) and ESR 8 (8 Oxford Road).

6.4.8 ESR 5 and ESR 8 are located at a junction (A361 Bloxham Road / B4100 Oxford Road / A361 South Bar Street) where NO_2 diffusion tube data, for 2014, has shown an exceedance of the annual mean objective. Elevated NO_2 concentrations would, therefore, be expected at these existing sensitive receptor locations.

6.4.9 The 2014 'baseline' annual mean PM_{10} concentrations (uncorrected) are predicted to range from 17.59 to 21.24 µg/m^3 for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for PM_{10} (40µg/m^3) is not predicted to occur.

6.4.10 The 2014 'baseline' annual mean $PM_{2.5}$ concentrations (uncorrected) are predicted to range from 11.62 to 13.52 µg/m^3 for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for $PM_{2.5}$ (25µg/m^3) is not predicted to occur.

Scenario 2: Future Year 2030 Without Development

6.4.11 The 2030 'without development' annual mean NO_2 concentrations (corrected) are predicted to range from 10.24 to 23.92µg/m^3 for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for NO_2 (40µg/m^3) is not predicted to occur.

6.4.12 The 2030 'without development' annual mean PM_{10} concentrations (uncorrected) are predicted to range from 16.15 to 18.47µg/m^3 for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for PM_{10} (40µg/m^3) is not predicted to occur.

6.4.13 The 2030 'without development' annual mean $PM_{2.5}$ concentrations (uncorrected) are predicted to range from 10.49 to 12.05µg/m^3 for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for $PM_{2.5}$ (25µg/m^3) is not predicted to occur.

6.5 POTENTIAL EFFECTS

Construction Stage

6.5.1 Potential effects arising from the construction stage remain as presented in the original ES chapter.

Post-Completion Stage – No Link Road (Scenario 3)

6.5.2 The traffic flow information for scenario 3 takes into consideration the committed developments outlined in 6.2.10.

6.5.3 The impact assessment has been carried out for the representative existing sensitive receptor locations (ESR 1 to ESR 11). Table 6.6 shows the changes in pollutant concentrations between the 2030 future year 'without development' and 'with development' scenarios with no link road in place. The uncorrected PM_{10} and $PM_{2.5}$ concentrations are included in Appendix 5f and corrected NO_2 predicted concentrations are detailed in Appendix 5g.

Table 6.6 - Predicted NO_2 and PM_{10} and $PM_{2.5}$ Concentrations at Existing Sensitive Receptor Locations for 2030 'Without Development' and 'With Development' Scenarios

Receptor	Level of Development	Calculated Annual Mean Concentrations (µg/m^3)		
		NO_2*	PM_{10}	$PM_{2.5}$
ESR 1	Without development	10.24	16.70	10.49
	With development	10.31	16.72	10.50
	Percentage Change Relative to AQAL	*+0.18%*	*+0.42%*	*+0.04%*
ESR 2	Without development	11.42	17.08	10.69
	With development	12.06	17.25	10.78
	Percentage Change Relative to AQAL	*+1.60%*	*+0.42%*	*+0.35%*
ESR 3	Without development	10.38	16.75	10.51
	With development	10.92	16.92	10.61
	Percentage Change Relative to AQAL	*+1.35%*	*+0.44%*	*+0.37%*
ESR 4	Without development	13.68	17.51	10.92

Receptor	Level of Development	Calculated Annual Mean Concentrations (µg/m^3)		
		NO_2*	**PM_{10}**	**$PM_{2.5}$**
	With development	14.57	17.72	11.03
	Percentage Change Relative to AQAL	*+2.23%*	*+0.54%*	*+0.46%*
ESR 5	Without development	23.92	18.47	12.05
	With development	24.40	18.61	12.12
	Percentage Change Relative to AQAL	*+1.20%*	*+0.34%*	*+0.29%*
ESR 6	Without development	20.43	16.50	10.95
	With development	20.31	16.48	10.93
	Percentage Change Relative to AQAL	*-0.30%*	*-+0.06%*	*-0.05%*
ESR 7	Without development	11.33	17.05	10.67
	With development	11.81	17.21	10.76
	Percentage Change Relative to AQAL	*+1.20%*	*+0.38%*	*+0.33%*
ESR 8	Without development	22.20	18.24	11.93
	With development	22.68	18.39	12.01
	Percentage Change Relative to AQAL	*+1.20%*	*+0.37%*	*+0.32%*
ESR 9	Without development	18.05	16.15	10.76
	With development	18.11	16.17	10.77
	Percentage Change Relative to AQAL	*+0.15%*	*+0.05%*	*+0.05%*
ESR 10	Without development	18.71	17.35	10.78
	With development	19.06	17.47	10.85
	Percentage Change Relative to AQAL	*+0.87%*	*+0.30%*	*+0.25%*
ESR 11	Without development	19.84	17.74	10.99
	With development	20.35	17.91	11.08
	Percentage Change Relative to AQAL	*+1.28%*	*+0.44%*	*+0.37%*

Scenario 3: Future Year 2030 'With Development'

6.5.4 The 2030 'with development' annual mean NO_2 concentrations (corrected) are predicted to range from 10.31 to 24.40µg/m^3 for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for NO_2 (40µg/m^3) is not predicted to occur.

6.5.5 The 2030 'with development' annual mean PM_{10} concentrations (uncorrected) are predicted to range from 16.17 to 18.61µg/m^3 for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for PM_{10} (40µg/m3) is not predicted to occur.

6.5.6 The 2030 'with development' annual mean $PM_{2.5}$ concentrations (uncorrected) are predicted to range from 10.50 to 12.12µg/m^3 for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for $PM_{2.5}$ (25µg/m^3) is not predicted to occur.

Assessment of Impact

Existing Sensitive Receptor Locations

6.5.7 Using the descriptors detailed in Table 6.2, the impact of the proposed development can be assessed at each of the three existing sensitive receptors considered.

6.5.8 The impact on NO_2 concentrations in 2030 is detailed in Table 6.7.

Table 67 – Impact on NO_2 concentrations in 2030

Proposed Receptor Location	Percentage Change	Annual Mean Concentration in Relation to AQAL	Impact
ESR 1	<0.5%*	<75%	Negligible
ESR 2	2 – 5%	<75%	Negligible
ESR 3	1%	<75%	Negligible
ESR 4	2 – 5%	<75%	Negligible
ESR 5	1%	<75%	Negligible
ESR 6	<0.5%*	<75%	Negligible
ESR 7	1%	<75%	Negligible

Proposed Receptor Location	Percentage Change	Annual Mean Concentration in Relation to AQAL	Impact
ESR 8	1%	<75%	Negligible
ESR 9	<0.5%*	<75%	Negligible
ESR 10	1%	<75%	Negligible
ESR 11	1%	<75%	Negligible
* Changes of less than 0.5% should be described as negligible			

6.5.9 The impact on PM_{10} concentrations in 2030 is detailed in Table 6.8.

Table 6.8 – Impact on PM_{10} concentrations in 2030

Proposed Receptor Location	Percentage Change	Annual Mean Concentration in Relation to AQAL	Impact
ESR 1	<0.5%*	<75%	Negligible
ESR 2	<0.5%*	<75%	Negligible
ESR 3	<0.5%*	<75%	Negligible
ESR 4	1%	<75%	Negligible
ESR 5	<0.5%*	<75%	Negligible
ESR 6	<0.5%*	<75%	Negligible
ESR 7	<0.5%*	<75%	Negligible
ESR 8	<0.5%*	<75%	Negligible
ESR 9	<0.5%*	<75%	Negligible
ESR 10	<0.5%*	<75%	Negligible
ESR 11	<0.5%*	<75%	Negligible
* Changes of less than 0.5% should be described as negligible			

6.5.10 The impact on $PM_{2.5}$ concentrations in 2030 is detailed in Table 6.9.

Table 6.9 – Impact on PM_{10} concentrations in 2030

Proposed Receptor Location	Percentage Change	Annual Mean Concentration in Relation to AQAL	Impact
ESR 1	<0.5%*	<75%	Negligible

Proposed Receptor Location	Percentage Change	Annual Mean Concentration in Relation to AQAL	Impact
ESR 2	<0.5%*	<75%	Negligible
ESR 3	<0.5%*	<75%	Negligible
ESR 4	<0.5%*	<75%	Negligible
ESR 5	<0.5%*	<75%	Negligible
ESR 6	<0.5%*	<75%	Negligible
ESR 7	<0.5%*	<75%	Negligible
ESR 8	<0.5%*	<75%	Negligible
ESR 9	<0.5%*	<75%	Negligible
ESR 10	<0.5%*	<75%	Negligible
ESR 11	<0.5%*	<75%	Negligible
* Changes of less than 0.5% should be described as negligible			

Proposed Sensitive Receptor Locations

6.5.11 Air pollutant concentrations have been modelled for three proposed receptor locations for the 2030 'with development' scenarios, as detailed in Table 6.10 for scenario 3. The uncorrected PM_{10} and $PM_{2.5}$ concentrations are included in Appendix 5f, and the corrected NO_2 concentrations are included in Appendix 5g.

Table 6.10 - Predicted Pollutant Concentrations at Proposed Receptor Points for 2030 'With Development' Scenarios

Proposed Receptor Point	Calculated Annual Mean Concentrations (µg/m³)		
	NO_2 (Corrected)	PM_{10} (Uncorrected)	$PM_{2.5}$ (Uncorrected)
PR 1	9.22	16.33	10.29
PR 2	9.65	16.39	10.33
PR 3	9.10	16.33	10.29

Scenario 3: Future Year 2030 With Development

6.5.12 The 2030 'with development' annual mean NO_2 concentrations (corrected) are predicted to range between 9.10 and 9.65µg/m^3 for the three proposed sensitive receptor locations considered. Exceedance of the annual mean objective concentration for NO_2 (40µg/m^3) is not predicted to occur.

6.5.13 The 2030 'with development' annual mean PM_{10} concentrations (uncorrected) are predicted to range between 16.33 to 16.39µg/m^3 for the three proposed sensitive receptor locations considered. Exceedance of the annual mean objective concentration for PM_{10} (40µg/m^3) is not predicted to occur.

6.5.14 The 2030 'with development' annual mean $PM_{2.5}$ concentrations (uncorrected) are predicted to range between 10.29 to 10.33µg/m^3 for the three proposed sensitive receptor locations considered. Exceedance of the annual mean objective concentration for $PM_{2.5}$ (25µg/m3) is not predicted to occur.

Post-Completion Stage – With Link Road (Scenario 4)

6.5.15 The traffic flow information for scenario 4 takes into consideration the committed developments outlined in 6.2.10.

6.5.16 The impact assessment has been carried out for the representative existing sensitive receptor locations (ESR 1 to ESR 11). Table 6.11 shows the changes in pollutant concentrations between the 2030 future year 'without development' without the proposed Link Road and 'with development' with the proposed Link Road scenario 4. The uncorrected PM_{10} and $PM_{2.5}$ concentrations are included in Appendix 5f and corrected NO_2 predicted concentrations are detailed in Appendix 5g

Table 6.11 - Predicted NO_2 and PM_{10} and $PM_{2.5}$ Concentrations at Existing Sensitive Receptor Locations for 2030 'Without Development' and 'With Development' Scenarios

Receptor	Level of Development	Calculated Annual Mean Concentrations (µg/m^3)		
		NO_2*	**PM_{10}**	**$PM_{2.5}$**
ESR 1	Without development	10.24	16.70	10.49
	With development	10.42	16.76	10.52
	Percentage Change Relative to AQAL	*+0.45%*	*+0.13%*	*+0.11%*
ESR 2	Without development	11.42	17.08	10.69

Receptor	Level of Development	Calculated Annual Mean Concentrations (µg/m^3)		
		NO_2*	PM_{10}	$PM_{2.5}$
	With development	10.07	16.54	10.41
	Percentage Change Relative to AQAL	*-3.38%*	*-1.35%*	*-1.14%*
ESR 3	Without development	10.38	16.75	10.51
	With development	10.51	16.78	10.53
	Percentage Change Relative to AQAL	*+0.32%*	*+0.08%*	*+0.07%*
ESR 4	Without development	13.68	17.51	10.92
	With development	14.34	17.67	11.00
	Percentage Change Relative to AQAL	*+1.65%*	*+0.39%*	*+0.33%*
ESR 5	Without development	23.92	18.47	12.05
	With development	24.34	18.59	12.11
	Percentage Change Relative to AQAL	*+1.05%*	*+0.29%*	*+0.25%*
ESR 6	Without development	20.43	16.50	10.95
	With development	21.01	16.65	11.03
	Percentage Change Relative to AQAL	*+1.45%*	*+0.38%*	*+0.32%*
ESR 7	Without development	11.33	17.05	10.67
	With development	11.70	17.17	10.74
	Percentage Change Relative to AQAL	*+0.92%*	*+0.29%*	*+0.25%*
ESR 8	Without development	22.20	18.24	11.93
	With development	22.55	18.35	11.98
	Percentage Change Relative to AQAL	*+0.88%*	*+0.27%*	*+0.23%*
ESR 9	Without development	18.05	16.15	10.76
	With development	18.34	16.26	10.81
	Percentage Change Relative to AQAL	*+0.72%*	*+0.26%*	*+0.22%*
ESR 10	Without development	18.71	17.35	10.78
	With development	18.90	17.41	10.82
	Percentage Change Relative to AQAL	*+0.47%*	*+0.16%*	*+0.13%*
ESR 11	Without development	19.84	17.74	10.99

Receptor	Level of Development	Calculated Annual Mean Concentrations (µg/m³)		
		NO_2*	**PM_{10}**	**$PM_{2.5}$**
	With development	20.09	17.82	11.03
	Percentage Change Relative to AQAL	*+0.63%*	*+0.22%*	*+0.18%*

Scenario 4: Future Year 2030 'With Development'

6.5.17 The 2030 'with development' annual mean NO_2 concentrations (corrected) are predicted to range from 10.42 to 24.34µg/m³ for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for NO_2 (40µg/m³) is not predicted to occur.

6.5.18 The 2030 'with development' annual mean PM_{10} concentrations (uncorrected) are predicted to range from 16.25 to 18.59µg/m³ for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for PM_{10} (40µg/m³) is not predicted to occur.

6.5.19 The 2030 'with development' annual mean $PM_{2.5}$ concentrations (uncorrected) are predicted to range from 10.41 to 12.11µg/m³ for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for $PM_{2.5}$ (25µg/m³) is not predicted to occur.

Assessment of Impact

Existing Sensitive Receptor Locations

6.5.20 Using the descriptors detailed in Table 6.2, the impact of the proposed development can be assessed at each of the eleven existing sensitive receptors considered.

6.5.21 The impact on NO_2 concentrations in 2030 is detailed in Table 6.12.

Table 6.12 – Impact on NO_2 concentrations in 2030

Proposed Receptor Location	Percentage Change	Annual Mean Concentration in Relation to AQAL	Impact
ESR 1	<0.5%*	<75%	Negligible
ESR 2	2 – 5%	<75%	Negligible
ESR 3	<0.5%*	<75%	Negligible
ESR 4	2 – 5%	<75%	Negligible
ESR 5	1%	<75%	Negligible
ESR 6	1%	<75%	Negligible
ESR 7	1%	<75%	Negligible
ESR 8	1%	<75%	Negligible
ESR 9	1%	<75%	Negligible
ESR 10	<0.5%*	<75%	Negligible
ESR 11	1%	<75%	Negligible
* Changes of less than 0.5% should be described as negligible			

6.5.22 The impact on PM_{10} concentrations in 2030 is detailed in Table 6.13.

Table 6.13 – Impact on PM_{10} concentrations in 2030

Proposed Receptor Location	Percentage Change	Annual Mean Concentration in Relation to AQAL	Impact
ESR 1	<0.5%*	<75%	Negligible
ESR 2	1%	<75%	Negligible
ESR 3	<0.5%*	<75%	Negligible
ESR 4	<0.5%*	<75%	Negligible
ESR 5	<0.5%*	<75%	Negligible
ESR 6	<0.5%*	<75%	Negligible
ESR 7	<0.5%*	<75%	Negligible
ESR 8	<0.5%*	<75%	Negligible
ESR 9	<0.5%*	<75%	Negligible
ESR 10	<0.5%*	<75%	Negligible

Proposed Receptor Location	Percentage Change	Annual Mean Concentration in Relation to AQAL	Impact
ESR 11	<0.5%*	<75%	Negligible
* Changes of less than 0.5% should be described as negligible			

6.5.23 The impact on $PM_{2.5}$ concentrations in 2030 is detailed in Table 6.14.

Table 6.14 – Impact on PM_{10} concentrations in 2030

Proposed Receptor Location	Percentage Change	Annual Mean Concentration in Relation to AQAL	Impact
ESR 1	<0.5%*	<75%	Negligible
ESR 2	1%	<75%	Negligible
ESR 3	<0.5%*	<75%	Negligible
ESR 4	<0.5%*	<75%	Negligible
ESR 5	<0.5%*	<75%	Negligible
ESR 6	<0.5%*	<75%	Negligible
ESR 7	<0.5%*	<75%	Negligible
ESR 8	<0.5%*	<75%	Negligible
ESR 9	<0.5%*	<75%	Negligible
ESR 10	<0.5%*	<75%	Negligible
ESR 11	<0.5%*	<75%	Negligible
* Changes of less than 0.5% should be described as negligible			

Proposed Sensitive Receptor Locations

6.5.24 Air pollutant concentrations have been modelled for three proposed receptor locations for the 2030 'with development' scenarios, as detailed in Table 6.15. The uncorrected PM_{10} and $PM_{2.5}$ concentrations are included in Appendix 5f, and the corrected NO_2 concentrations are included in Appendix 5g.

Table 6.15 - Predicted Pollutant Concentrations at Proposed Receptor Points for 2030 'With Development' Scenarios

Proposed Receptor Point	Calculated Annual Mean Concentrations (µg/m^3)		
	NO_2 (Corrected)	PM_{10} (Uncorrected)	$PM_{2.5}$ (Uncorrected)
PR 1	12.01	16.90	10.60
PR 2	11.50	16.78	10.53
PR 3	9.56	16.41	10.33

Scenario 3: Future Year 2030 With Development

6.5.25 The 2030 'with development' annual mean NO_2 concentrations (corrected) are predicted to range between 9.56 and 12.01µg/m^3 for the three proposed sensitive receptor locations considered. Exceedance of the annual mean objective concentration for NO_2 (40µg/m^3) is not predicted to occur.

6.5.26 The 2030 'with development' annual mean PM_{10} concentrations (uncorrected) are predicted to range between 16.41 to 16.90µg/m^3 for the three proposed sensitive receptor locations considered. Exceedance of the annual mean objective concentration for PM_{10} (40µg/m^3) is not predicted to occur.

6.5.27 The 2030 'with development' annual mean $PM_{2.5}$ concentrations (uncorrected) are predicted to range between 10.33 to 10.60µg/m^3 for the three proposed sensitive receptor locations considered. Exceedance of the annual mean objective concentration for $PM_{2.5}$ (25µg/m^3) is not predicted to occur.

Post-Completion Stage – With Link Road + Cumulative (Scenario 5)

6.5.28 The impact assessment has been carried out for the representative existing sensitive receptor locations (ESR 1 to ESR 11). Table 6.16 shows the changes in pollutant concentrations between the 2030 future year 'without development' without the proposed Link Road and 'with development' with the proposed Link Road and the proposed Gladman scheme scenarios. The uncorrected PM_{10} and $PM_{2.5}$ concentrations are included in Appendix 5f and corrected NO_2 predicted concentrations are detailed in Appendix 5g.

Table 6.16 - Predicted NO_2 and PM_{10} and $PM_{2.5}$ Concentrations at Existing Sensitive Receptor Locations for 2030 'Without Development' and 'With Development' Scenarios

Receptor	Level of Development	Calculated Annual Mean Concentrations (µg/m³)		
		NO_2*	PM_{10}	$PM_{2.5}$
ESR 1	Without development	10.24	16.70	10.49
	With development	11.11	16.98	10.64
	Percentage Change Relative to AQAL	*+2.88%*	*+0.69%*	*+0.58%*
ESR 2	Without development	11.42	17.08	10.69
	With development	10.67	16.71	10.49
	Percentage Change Relative to AQAL	*-1.88%*	*-0.94%*	*-0.79%*
ESR 3	Without development	10.38	16.75	10.51
	With development	11.16	16.99	10.64
	Percentage Change Relative to AQAL	*+1.95%*	*+0.60%*	*+0.51%*
ESR 4	Without development	13.68	17.51	10.92
	With development	13.59	17.49	10.91
	Percentage Change Relative to AQAL	*-0.23%*	*-0.05%*	*-0.05%*
ESR 5	Without development	23.92	18.47	12.05
	With development	24.48	18.62	12.13
	Percentage Change Relative to AQAL	*+1.40%*	*+0.39%*	*+0.33%*
ESR 6	Without development	20.43	16.50	10.95
	With development	21.11	16.67	11.04
	Percentage Change Relative to AQAL	*+1.70%*	*+0.44%*	*+0.37%*
ESR 7	Without development	11.33	17.05	10.67
	With development	11.68	17.16	10.73
	Percentage Change Relative to AQAL	*+0.87%*	*+0.28%*	*+0.23%*
ESR 8	Without development	22.20	18.24	11.93
	With development	22.63	18.38	12.00
	Percentage Change Relative to AQAL	*+1.08%*	*+0.33%*	*+0.28%*
ESR 9	Without development	18.05	16.15	10.76

Receptor	Level of Development	Calculated Annual Mean Concentrations (µg/m^3)		
		NO_2*	**PM_{10}**	**$PM_{2.5}$**
	With development	18.34	16.25	10.81
	Percentage Change Relative to AQAL	*+0.72%*	*+0.25%*	*+0.21%*
ESR 10	Without development	18.71	17.35	10.78
	With development	18.92	17.42	10.82
	Percentage Change Relative to AQAL	*+0.53%*	*+0.18%*	*+0.15%*
ESR 11	Without development	19.84	17.74	10.99
	With development	20.12	17.84	11.04
	Percentage Change Relative to AQAL	*+0.70%*	*+0.25%*	*+0.21%*

Scenario 5: Future Year 2030 'With Development'

6.5.29 The 2030 'with development' annual mean NO_2 concentrations (corrected) are predicted to range from 10.67 to 24.48µg/m^3 for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for NO_2 (40µg/m^3) is not predicted to occur.

6.5.30 The 2030 'with development' annual mean PM_{10} concentrations (uncorrected) are predicted to range from 16.25 to 18.62µg/m^3 for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for PM_{10} (40µg/m^3) is not predicted to occur.

6.5.31 The 2030 'with development' annual mean $PM_{2.5}$ concentrations (uncorrected) are predicted to range from 10.49 to 12.13µg/m^3 for the eleven existing sensitive receptor locations considered. Exceedance of the annual mean objective concentration for $PM_{2.5}$ (25µg/m^3) is not predicted to occur.

Assessment of Impact

Existing Sensitive Receptor Locations

6.6.1 Using the descriptors detailed in Table 6.2, the impact of the proposed development can be assessed at each of the eleven existing sensitive receptors considered.

6.6.2 The impact on NO_2 concentrations in 2030 is detailed in Table 6.17.

Table 6.17 – Impact on NO_2 concentrations in 2030

Proposed Receptor Location	Percentage Change	Annual Mean Concentration in Relation to AQAL	Impact
ESR 1	2 – 5%	<75%	Negligible
ESR 2	2 – 5%	<75%	Negligible
ESR 3	2 – 5%	<75%	Negligible
ESR 4	<0.5%*	<75%	Negligible
ESR 5	1%	<75%	Negligible
ESR 6	2 – 5%	<75%	Negligible
ESR 7	1%	<75%	Negligible
ESR 8	1%	<75%	Negligible
ESR 9	1%	<75%	Negligible
ESR 10	1%	<75%	Negligible
ESR 11	1%	<75%	Negligible
* Changes of less than 0.5% should be described as negligible			

6.5.32 The impact on PM_{10} concentrations in 2030 is detailed in Table 6.18.

Table 6.18 – Impact on PM_{10} concentrations in 2030

Proposed Receptor Location	Percentage Change	Annual Mean Concentration in Relation to AQAL	Impact
ESR 1	1%	<75%	Negligible
ESR 2	1%	<75%	Negligible
ESR 3	1%	<75%	Negligible
ESR 4	<0.5%*	<75%	Negligible
ESR 5	<0.5%*	<75%	Negligible
ESR 6	<0.5%*	<75%	Negligible
ESR 7	<0.5%*	<75%	Negligible

Proposed Receptor Location	Percentage Change	Annual Mean Concentration in Relation to AQAL	Impact
ESR 8	<0.5%*	<75%	Negligible
ESR 9	<0.5%*	<75%	Negligible
ESR 10	<0.5%*	<75%	Negligible
ESR 11	<0.5%*	<75%	Negligible
* Changes of less than 0.5% should be described as negligible			

6.5.33 The impact on $PM_{2.5}$ concentrations in 2030 is detailed in Table 6.19.

Table 6.19 – Impact on PM_{10} concentrations in 2030

Proposed Receptor Location	Percentage Change	Annual Mean Concentration in Relation to AQAL	Impact
ESR 1	1%	<75%	Negligible
ESR 2	1%	<75%	Negligible
ESR 3	1%	<75%	Negligible
ESR 4	<0.5%*	<75%	Negligible
ESR 5	<0.5%*	<75%	Negligible
ESR 6	<0.5%*	<75%	Negligible
ESR 7	<0.5%*	<75%	Negligible
ESR 8	<0.5%*	<75%	Negligible
ESR 9	<0.5%*	<75%	Negligible
ESR 10	<0.5%*	<75%	Negligible
ESR 11	<0.5%*	<75%	Negligible
* Changes of less than 0.5% should be described as negligible			

Proposed Sensitive Receptor Locations

6.5.34 Air pollutant concentrations have been modelled for three proposed receptor locations for the 2030 'with development' scenarios, as detailed in Table 6.20 for scenario 5. The uncorrected PM_{10} and $PM_{2.5}$ concentrations are included in Appendix 5f, and the corrected NO_2 concentrations are included in Appendix 5g.

Table 6.20 - Predicted Pollutant Concentrations at Proposed Receptor Points for 2030 'With Development' Scenarios

Proposed Receptor Point	Calculated Annual Mean Concentrations (µg/m^3)		
	NO_2 (Corrected)	PM_{10} (Uncorrected)	$PM_{2.5}$ (Uncorrected)
PR 1	13.00	17.14	10.72
PR 2	12.41	16.99	10.65
PR 3	10.00	16.53	10.40

Scenario 5: Future Year 2030 With Development

6.5.35 The 2030 'with development' annual mean NO_2 concentrations (corrected) are predicted to range between 10.00 and 12.41µg/m^3 for the three proposed sensitive receptor locations considered. Exceedance of the annual mean objective concentration for NO_2 (40µg/m3) is not predicted to occur.

6.5.36 The 2030 'with development' annual mean PM_{10} concentrations (uncorrected) are predicted to range between 16.53 to 17.14µg/m^3 for the three proposed sensitive receptor locations considered. Exceedance of the annual mean objective concentration for PM_{10} (40µg/m^3) is not predicted to occur.

6.5.37 The 2030 'with development' annual mean $PM_{2.5}$ concentrations (uncorrected) are predicted to range between 10.40 to 10.72µg/m\$^3$ for the three proposed sensitive receptor locations considered. Exceedance of the annual mean objective concentration for $PM_{2.5}$ (25µg/m^3) is not predicted to occur.

6.6 ASSESSMENT OF SIGNIFICANCE

6.6.1 The significance of the overall effects of the proposed development has been assessed. This assessment is based on professional judgement and takes into account a number of factors including:

- Baseline pollutant concentrations in the 2014 Base Year are mostly below the relevant annual mean objectives, with the exception of ESR 5 (9 Oxford Road) and ESR 8 (8 Oxford Road) where exceedance of the annual mean NO_2 concentration has been modelled;

- With regard to the future baseline (i.e. the 2030 Future Year 'without development' scenarios), all pollutant concentrations are predicted to be below the relevant annual mean objectives.;

  Scenario 3: 2030 With Development – No Link Road.
- The air quality assessment (i.e. best case scenario where improvements in background air quality and vehicle emission factors are considered) predicts a negligible impact on NO_2, PM_{10} and $PM_{2.5}$ concentrations at all eleven existing sensitive receptor locations, with the development in place in scenario 3.
  Scenario 4: 2030 With Development – With Link Road.

- The air quality assessment predicts a negligible impact on NO_2, PM_{10} and $PM_{2.5}$ concentrations at all eleven existing sensitive receptors considered, with the development in place in scenario 4.

  Scenario 5: 2030 With Development + 280 dwellings on Gladman land – With Link Road.
- The air quality assessment predicts a negligible impact on NO_2, PM_{10} and $PM_{2.5}$ concentrations at all eleven existing sensitive receptors considered, with the development in place for scenario 5.

6.6.2 Based on these factors, the effect of the proposed development on human health is considered to be 'not significant' for all scenarios considered for concentrations of NO_2, PM_{10} and $PM_{2.5}$.

6.7 MITIGATION MEASURES

Construction Stage

Construction Phase Assessment – Dust Emissions

Step 3

6.7.1 Mitigation measures associated with the construction stage remains as reported in the previous ES chapter.

Post-Completion Stage

Operational Phase Assessment – Road Traffic Emissions

Existing Sensitive Receptor Locations

6.7.2 An air quality assessment has been undertaken to consider the potential impact of development-generated vehicles on air quality at eleven existing sensitive receptor locations in three development scenarios.

6.7.3 The air quality assessment predicts a negligible and not significant impact on concentrations of NO_2, PM_{10} and $PM_{2.5}$ concentrations at all eleven existing sensitive receptors considered, in 2030 with the development in place, in all three development scenarios.

Proposed Sensitive Receptor Locations

6.7.4 The assessment has also predicted pollutant concentrations at three proposed receptor locations within the proposed residential development site. These receptors are considered to be representative of the proposed residential areas closest to the A361 Bloxham Road and the proposed site access/link road.

6.7.5 Predicted NO_2, PM_{10} and $PM_{2.5}$ concentrations are below the annual mean air quality objectives, for 2030, at all three proposed sensitive receptor locations considered in the three scenarios considered. Air quality effects within the site are therefore considered to be not significant.

6.7.6 The impact of the proposed development is predicted to be not significant for human receptors. However, the impact could be reduced further through the implementation of air quality mitigation.

6.7.7 Mitigation measures which could be implemented include a green travel plan..

6.8 RESIDUAL EFFECTS

Construction Stage

6.8.1 Residual effects arising from the construction stage remain as reported in the original ES chapter.

Post-Completion Stage

Operational Phase Assessment – Road Traffic Emissions

Existing Sensitive Receptor Locations

6.8.2 An air quality assessment has been undertaken to consider the potential impact of development-generated vehicles on air quality at eleven existing sensitive receptor locations in three development scenarios.

6.8.3 The air quality assessment predicts a negligible and not significant impact on concentrations of NO_2, PM_{10} and $PM_{2.5}$ concentrations at all eleven existing sensitive receptors considered, in 2030 with the development in place, in all three development scenarios.

Proposed Sensitive Receptor Locations

6.8.4 The assessment has also predicted pollutant concentrations at three proposed receptor locations within the proposed residential development site. These receptors are considered to be representative of the proposed residential areas closest to the A361 Bloxham Road and the proposed site access/link road.

6.8.5 Predicted NO_2, PM_{10} and $PM_{2.5}$ concentrations are below the annual mean air quality objectives, for 2030, at all three proposed sensitive receptor locations considered in the three with development scenarios considered. Air quality effects within the site are therefore considered to be not significant.

Summary of effects

6.8.6 The identified potential effects of the Proposed development on air quality are summarised in Table 6.36:

Table 6.36: Summary of Effects

Potential effect	Significance (pre-mitigation)	Mitigation measure	Significance of residual effect
Construction Phase			
Changes in air quality at existing sensitive receptor locations due to construction phase activities (i.e. earthworks, construction and trackout)	Potential effects arising from the construction stage remain as presented in the original ES chapter		
Post-Completion Stage			
Changes in air quality at existing sensitive receptor locations due to operational phase traffic	Negligible to substantial adverse	Appropriate mitigation measures	Negligible
Air quality at proposed sensitive receptor locations due to operational phase traffic	Negligible	Implementation of a green travel plan	Negligible