NORTHAMPTON GATEWAY
STRATEGIC RAIL FREIGHT INTERCHANGE

APPLICANT'S RESPONSES TO EXAMINING AUTHORITY SECOND WRITTEN QUESTIONS (ExQ2)

DOCUMENT 8.17

The Northampton Gateway Rail Freight Interchange Order 201X

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SECOND WRITTEN QUESTIONS (ExQ2) | 26 FEBRUARY 2019

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ROXHILL

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Where a question is not asked of the Applicant but the Applicant wishes to comment, the text is in *italics*.

ExQ2	Question to:	Question:	Applicant's Response
2.0.	**General and Cross-topic Questions**		
2.0.1.	Applicant and any other Interested Parties	As the date for Britain's (probable) departure from the European Union draws near (Brexit), the ExA would welcome views on its possible impact in terms of the Proposed Development with regards the scheme's underlying economic/commercial justification, ports and domestic intermodal movement of goods, employment levels and funding implications.	The Applicant (Roxhill (Junction 15) Limited) is a company which is 50% owned by SEGRO plc and 50% owned by Roxhill Developments Holdings Limited (Roxhill). SEGRO is a UK Real Estate Investment Trust (REIT) and a leading owner, asset manager and developer of modern warehousing and light industrial property. It owns or manages 7 million square metres of space (75 million square feet) valued at over £10 billion serving customers from a wide range of industry sectors. Its properties are located in and around major cities and at key transportation hubs in the UK and in eight other European countries. It is the intention of SEGRO and Roxhill that SEGRO become the 100% owner of Roxhill (Junction 15) Limited and it will use its expertise and economic strength to fund infrastructure, land acquisition and built development on site: a total investment estimated at c.£500m+. SEGRO is a long term developer and investor in the sector and intends to hold the site, as it does with other strategic sites in its portfolio, as part of its growing network of rail freight interchanges.

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			For example, the SEGRO Logistics Park East Midlands Gateway, SRFI is a wholly owned and funded SEGRO asset. Whilst Brexit is creating some uncertainty at present, SEGRO does not see a material impact on the logistics market nor its appetite or ability to fund high quality major developments such as this. This proposed development meets SEGRO's strategy for long term investment and commitment in this sector.
2.0.2.	The Applicant, Ashfield Land Limited and Gazeley GLP Northampton s.a.r.l (hereafter referred to as Rail Central for shorthand) and Network Rail (NR)	The Applicant's 'Statement of Common Ground Update and Statement of Commonality' submitted for Deadline 4 (Doc 8.4A [REP4-009]) notes that the Statement of Common Ground (SoCG) between it and Rail Central and that between it and Rail Central and Network Rail are agreed but not signed, with no outstanding issues. For Deadline 3 Rail Central refers to a broader SoCG between it and the Applicant [REP3-016] but the Applicant suggests (Doc 8.8B [REP4 –010]) that such a further SoCG would not serve any purpose. However, to assist the ExA, as there will no doubt be further submissions made to the Examination, particularly in relation to cumulative and interaction impacts, the ExA would welcome the submission of	Noted. The signed Statement of Common Ground with Rail Central (**Document 7.17A** [AS-049]) was submitted to the ExA on 11 February 2019. The signed Tripartite SoCG with Rail Central and Network Rail is submitted for **Deadline 5** (Document 7.18A).

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		updated and signed-off SoCG by Deadline 6 (19 March 2019) which take into account the positions reached following the Issue Specific Hearing to be held on 13 March.	
2.0.3.	Rail Central	An alternative footpath connection point from the Rail Central site is proposed within the Northampton Gateway Main Site in the event of the Rail Central Order being made. This is shown on the plan attached as Appendix 2 to the Applicant's DCO Changes Tracker (Document 3.4B [REP4-005]). The Applicant suggests that Rail Central is unlikely to object to this. Can Rail Central please comment?	*Attached at **Appendix 1** to this Document is a note explaining the rationale behind the footpath link shown in Appendix 2 to the Applicant's DCO Changes Tracker (**Document 3.4B** [REP4-005]).*
2.0.4.	The Applicant	It has been suggested that the Proposed Development would in part serve a London market. The Applicant's Market Analysis Report (Doc 6.8 [APP-378]) notes at section 7 that a combined core catchment area of around 15km and a secondary catchment of about 50km would be likely to incorporate the majority of logistics users who would use a SRFI (a matter which is supported by analysis	Paragraph 7.12 of the Market Analysis Report (**Document 6.8A** [REP1-004]) explains that users of rail-freight terminals are typically moving goods by rail to be sent to National and large Regional distribution centres either located on an SRFI site or within a reasonable 'catchment' around the terminals. It explains that goods are then moved onwards to their next (possibly end) destinations, usually by road but sometimes also by rail. The process being described is a logistics model utilised by organisations that incorporate National or large Regional

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		of outbound lorries from DIRFT). Figure 12 of the report shows a secondary catchment of 50km from the proposed development which doesn't extend as far as the M25. Could the Applicant please comment?	distribution centres where rail can perform the trunk haul component of the freight journey and other modes providing the secondary (final delivery) leg of the journey (this process is also described in paragraphs 2.43 and 2.44 of the NPSNN). The 'catchment' area around an SRFI is described in Section 7 of the Market Analysis Report, where evidence is presented to explain the location of warehousing likely to be served by an SRFI. As set out in the ExA's question, the Market Analysis Report concludes that a catchment area of 50 km from the SRFI would be likely to incorporate the majority of logistics operators (warehousing) who would utilise a terminal. However, given that it is anticipated that the majority of warehousing served by the SRFI will be National or large Regional distribution centres, the secondary (or final delivery) leg of the journey of goods, will often be over a large area, and may incorporate London. Section 4 and Appendix a1.4 of the Market Analysis Report explain the demand for logistics in Northampton. This explains why the Midlands Heartlands area has and will continue to have, a concentration of logistics activity. A key driver for the location of logistics warehousing is the access to population centres. Paragraph 4.18 explains that due to the Northampton Gateway site's location in the southern part of the Midlands Heartlands, it is within a 90-minute HGV drive time of the majority of London. The importance of drive times was further explained in the Applicant's

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			response to ExQ1.0.30 in the ExA's first written questions (**Document 8.2** [REP1-020 and REP1-021]). This means that imported goods can be delivered to a National distribution centre at or within the 'catchment' of Northampton Gateway, sorted, stored and then processed for onward distribution, with secondary destinations across large parts of the UK, including particularly good access to London. These secondary destinations may, depending on the structure of the particular business, be a small local distribution centre prior to final delivery, or be direct to end customers.
2.1.	**Air Quality and Emissions**		
			In view of the number of questions the ExA has in relation to Air Quality, the Applicant thought it might be helpful to provide the ExA with a position statement drawing together the Air Quality conclusions and sign posting the evidence supporting them, with reference to the relevant considerations set out in the NPSNN. This note is attached at **Appendix 2**.
2.1.1.	All questions on the Air Quality and Emissions topic are addressed to the Applicant. If a question is also addressed to another person,	Paragraph (para) references are to those in ES Chapter 9 (Air Quality) (Doc 5.2 [REP4-007, updated version of Chapter 9]) unless stated otherwise. Paragraph 9.3.69 and Appendix 9.11 Assessment of Construction Traffic (Doc 5.2 [APP-218]). Appx 9.11 shows that the Annual Mean for NO_2 never	No, the PM_{10} results presented in Table A9.11.3 have been transcribed incorrectly. The updated results are provided as tracked changes in the new revised ES chapter submitted with this response (please see **Appendix 3**). The correct PM_{10} results show that levels are below the PM_{10} EU limit value (40 µg/m^3) and all changes resulting from construction are negligible. The NO_2 results presented in Table A9.11.2 <u>are correct</u> and are also all below the EU limit value (40 µg/m^3).

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	either separately or in addition, that person is identified in this column	exceeds 34.9 micrograms per cubic metre for either NO_2 or PM_{10} which is below the EU limit value (40 µg/m^3) prescribed in Annex XI of the Air Quality Directive (L 152/30). However, all the figures for NO_2 (Table A9.11.2) and PM_{10} (Table A9.11.3) are identical at each receptor. Is this right?	All results are below the EU limit value and therefore there is no change to the assessed impact of the construction of the Proposed Development. It has been assessed to have a Negligible impact on air quality overall.
2.1.2.		Para 9.3.6 – Is the Applicant picking out the green points or is it all of the houses and commercial buildings within the 350m boundary shown on the Figures?	Yes, the green points have specifically been picked out from the larger numbers of high sensitivity receptors within the construction buffers in Figures 9.1-9.4. The green points represent examples of high sensitivity receptors to dust impacts (e.g. nurseries, care homes). These receptors have been picked out as they are high sensitivity receptors with high occupancy (e.g. a care home contains more high sensitivity receptors than a single residential dwelling). The Applicant considers all houses and commercial buildings (i.e. human receptors) in paragraph 9.3.6. It should be noted that the Figures focus on high sensitivity receptors, as high sensitivity receptors have a greater influence on the judgement of an area's sensitivity to dust. The Figures have been updated to say "highly sensitive receptors" to make this clearer (the tracked change ES Chapter is attached at **Appendix 3**). All residential receptors (dwellings), which are also high sensitivity receptors, were not specifically highlighted in the Figures as this would have resulted in multiple green dots saturating Figures 9.1-

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			9.4, making it difficult to view high sensitivity receptors with high occupancy (e.g. nurseries, care homes). Commercial buildings are generally considered to be medium sensitivity receptors and are therefore not identified on the Figures.
2.1.3.		Para 9.3.11 – This states that no heavy construction vehicles will be permitted to use the A508 south of the Main Site. Please will the Applicant say where this is secured? Please will the Applicant also comment on vehicles involved in constructing the Roade Bypass and other road improvements south of the Main Site? Have their effects on air quality been taken into account? If they are not called out specifically, please will the Applicant explain how they are included in the assessment?	Sections 14 and 19 of the CEMP (Appendix 2.1 of the ES (**Document 5.2** [AS-048])) deal with construction traffic routing and traffic management, respectively, and confirm that details of the construction traffic routing and traffic management will be set out in each P-CEMP and agreed with NCC, Highways England and the Project Manager. All contractors shall then comply with the requirements of that strategy. Paragraph 12.7.17 of the ES describes that the routing of the construction traffic would be such that no heavy construction traffic associated with the main site would be permitted to use the A508 south of the main site. However, as identified by the ExA, paragraph 9.3.11 of the ES omitted the caveat provided at paragraph 12.7.17 (in the Transportation Chapter), that traffic associated with construction of the A508 Roade Bypass and A508 improvements would, by necessity of access, be permitted to use the A508 to the south of the site. Year three of the bypass construction programme is expected to be the busiest period for associated HGV traffic, when average two-way flows on the A508 of 86 HGVs per day are expected. Following the IAQM guidance 'Land-Use Planning & Development Control: Planning for Air Quality', the relevant indicative criterion for determining whether an air quality assessment is required is a change of more than 100 HGVs AADT. As the busiest period of

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			construction traffic on the A508 associated with the bypass construction is below this, its impact can be considered negligible (and temporary), which is not significant. Further assessment of its impact is, therefore, not required and has been screened out.
2.1.4.		Para 9.3.15 – Is the ExA right in understanding from replies to FWQs that this has in fact been done and is incorporated in the Chapter already at paras 9.5.41 - 47?	Yes, this is correct.
2.1.5.		Para 9.3.16 - To be clear, is this para saying that the Applicant has taken the traffic data for the roads, described as "Modelled Roads" in the Figures, put that into the dispersion model and required the model to produce figures for concentrations at the points on the Figures described as Modelled Receptors? The results from the model (which are described as modelled results) were then compared with the local authorities' data drawn from actual monitoring, and in some cases diffusion tubes installed for this exercise (see paras 9.3.30-31 for the latter conclusion).	Yes, this is correct.

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2.1.6.		Para 9.3.23 – Does this mean a device was placed on the façade, or that the model imagines a device on these façades?	No device was placed on the façade. The model imagines a device on these facades. They are virtual receptor locations for the purpose of dispersion modelling.
2.1.7.		Para 9.4.26 assumes a gradual improvement in background concentrations in line with DEFRA predictions. Elsewhere (para 9.4.9) this chapter says that the actual records and forecasts from the local authority data show less improvement than the Defra forecast. Please will the Applicant comment?	The general trend across the UK is for a gradual improvement in air quality as cleaner vehicles replace older, dirtier ones. However, results from individual monitoring locations can, and often do, fluctuate around the trend line of general improvement. The ES Chapter is referring to this overall improvement trend being less pronounced in the local data sets as these are short-term (3-4 years) results as compared to the long term Defra data and forecasts. The Defra background concentrations are averages, forecast by a computer model, validated and sourced from regional AURN background and roadside monitors (Automatic Urban and Rural Network - the UK's air quality monitoring network, run by Defra). Fluctuations from local monitoring stations can be more pronounced at roadside locations compared to background locations. It is worth noting that there is a stepped reduction in background NO_2 concentrations at the two urban background diffusion tubes between 2013 and 2015. However, there was an acknowledged slight rise in local monitoring results in 2016. As discussed, elsewhere in the Chapter (paragraph 9.3.33), 2016 was considered a worst-case year by NBC in their Annual Status Report (2017) and is considered to be an anomalous year in the trend.

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			Defra provides modelled forecasts of background pollution concentrations and these consider the wider effects and implications of international, national and local pollution reduction measures. These include International Agreements such as the National Emissions Ceiling Directive (NECD), the UK Air Quality Strategy, the Air Quality Plan for Roadside NO_2, and proposed Low Emission Strategies such as the Northampton Low Emission Strategy (LES). Going forwards, these reduction measures will have a significant effect on background concentrations and will influence the trend of reduced emissions and improvements in air quality over time.
2.1.8.		Para 9.5.19 – Please could the Applicant indicate where in the chapter to find the data for background PM10 concentrations? The data at Table 9.3 are for the Main Site only. This question also applies to the conclusion at para 9.5.33 which relates to the Roade Bypass.	The data for the background PM_{10} concentrations in paragraph 9.5.19 refer to the values in Table 9.3 (revised 9.2), which are all well below the AQS of 40µg/m^3. In the absence of local specific monitoring data, PM_{10} concentrations are available for 1km^2 grid squares, and while the data often do not vary much from one 1km^2 square to the next, grid squares dominated by major roads will obviously have higher concentrations than those further away from major roads. Although similar background data are not provided in the chapter specifically for the Roade bypass, they would not be worse than for the main site which is affected by more significant emissions from the nearby M1. Using data based on the M1 is therefore a worst-case, and the conclusion at para 9.5.33 remains valid. For completeness and comparison, the Defra PM_{10} background data for the central 1km2 grid square showing the highest

<table>
<tr><th>ExQ2</th><th>Question to:</th><th>Question:</th><th>Applicant's Response</th></tr>
<tr><td></td><td></td><td></td><td>concentrations for the length of the Roade bypass site and the main site are provided below, and clearly show that the main site sees higher levels than the Roade bypass:
<table><tr><td>Year</td><td>Roade Bypass 1km2 grid sq.</td><td>Main Site 1km2 grid sq.</td></tr><tr><td>2015</td><td>14.2µg/m3</td><td>16.6µg/m3</td></tr><tr><td>2018</td><td>13.9µg/m3</td><td>16.2µg/m3</td></tr><tr><td>2021</td><td>13.6µg/m3</td><td>15.9µg/m3</td></tr><tr><td>2030</td><td>13.3µg/m3</td><td>15.6µg/m3</td></tr></table>Note there are no future (Defra) background data beyond 2030.</td></tr>
<tr><td>2.1.9.</td><td>The Applicant, South Northamptonshire Council (SNC), Northampton Borough Council (NBC)</td><td>Para 9.5.35, referring to dust emissions associated with the Road Bypass says: "In the absence of any mitigation, including Construction Environmental Management Plan (CEMP) measures, Demolition, Earthworks and Construction are considered to present a Medium Risk of dust soiling effects, whilst, Trackout is considered to present a High Risk of dust soiling effects".

(i) What is the mitigation to address this? And how is it secured? The CEMP is specified as but one of the tools.</td><td>'Trackout' (the movement of vehicles on soiled surfaces) specifically is identified as being of high-risk due to the size of the site, and because of the location of more than 10 receptors relative to the site access (in accordance with the standard IAQM methodology). Also see responses to ExQ1 1.1.30 and 1.1.32 (Document 8.2 [REP1-020 and REP1-021]).

'Demolition, Earthworks and Construction' is medium risk due to the location of some sensitive receptors in the context of the prevailing wind direction.

(i) The wording of paragraph 9.3.5 (and other similar references in Chapter 9) is not meant to imply that the CEMP is one of many, equally relevant tools – the CEMP is the primary route through which mitigation of potential construction effects on air quality will be agreed and implemented (enforced through Requirement 12).</td></tr>
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			However, the CEMP is not a single 'tool' in the sense that it contains a range of mitigation measures regarding air quality (Dust Management), to be applied where relevant. The CEMP includes many of the measures described in Section 9.6 of ES Chapter 9, and in Appendix 9.8.
		(ii) The Applicant is also referred to the ExA's questions below on paras 9.6.1 to 9.6.4. How can the ExA and the SoS know that the appropriate and adequate mitigation will be put in place and how do the RPAs judge whether what is proposed in due course is appropriate and adequate?	(ii) The mitigation measures in the CEMP follow the UK IAQM and GLA best practice measures for mitigating sites of identified risk. Each P-CEMP will provide a range of measures appropriate to the risk. The CEMP has been subject to comment and input from a range of interested parties, including the local authorities which have both Building Regulations and Environmental Health roles and duties, and Requirement 12 requires the subsequent phase specific P-CEMPs to be agreed with the Relevant Planning Authority (RPA) or Relevant Highway Authority (RHA) for highway works. As set out in Requirement 12, no start of construction works (including preparatory earthworks or levelling) can be made until the relevant P-CEMP has been agreed in writing with the RPA or RHA as appropriate. This combination of a wide range of proposed mitigation measures identified in the CEMP, and a process of written agreement of the specific actions and measures in each P-CEMP, provides the assurance and confidence required by the ExA and SoS. It ensures that the RPA or RHA as appropriate are fully involved in agreeing the detail for how mitigation measures are to be implemented in practice.

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		(iii) The Construction mitigation section - paras 9.6.1 – 9.6.4 - refers at para 9.6.3 to dust mitigation for the Main Site but not for the Roade Bypass. Please can the Applicant comment on what is to be put in place for the Roade Bypass.	(iii) As referred to above, each phase of construction will have a P-CEMP (a phase specific CEMP), prepared in response to the scale and nature of the relevant construction activity of the phase in question. The CEMP provides the context for the P-CEMPs. The Roade Bypass as a phase of construction would have a P-CEMP with relevant measures incorporated, including those for mitigating dust. The approval/sign-off process of agreeing with the RHA the required measures in the P-CEMP described above in response to ii) would apply.
		(iv) The ExA assumes in view of paras 9.5.36 to 9.5.38 that nothing is required for the other Highways Mitigation Measures. Please could the Applicant, SNC and NBC confirm this?	(iv) The CEMP (and a relevant P-CEMP) will apply throughout all components of the development. The highway works referred to at paras 9.5.36 and 9.5.37 are those shown on Figures 9.3 and 9.4 and comprise the following: • M1 J15A (Works No. 11) • A508 / C85 Pury Road (Works No. 15) • A508 Grafton Regis (Works No. 17) These minor highway mitigation sites are deemed lower risk for dust impacts than the main site and the construction of the Roade bypass.
2.1.10.		Paras 9.5.56; 9.5.58 and 9.5.59.	Yes, apologies for this, there is an error in referencing the Tables. The correct references are:

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		Para 9.5.56 refers to Table 9.16 (PM10s) but is discussing NO2 – should the reference be to Table 9.15? Para 9.5.58 refers to Table 9.17. Is that the right table? Should it not be Table 9.16? Para 9.5.59 refers to Tables 9.16 and 9.17. Should it not be 9.15 and 9.16?	• Para 9.5.56 - NO_2 should reference Table 9.15 • Para 9.5.58 - PM_{10} should reference Table 9.16 • Para 9.5.59 - NO_2 should reference Table 9.15 and PM_{10} should reference Table 9.16 These have been amended in the tracked change ES chapter submitted with this response (see **Appendix 3**).
2.1.11.		Table 9.15 and Table 9.16. Table 9.15 shows, in Column B, the predicted concentrations of NO_2 in 2021, without the development, in the Collingtree AQMA No 1, at Receptors C1 - C17. In Appendix 9.11, Table A9.11.2 (Doc5.2 [APP-218]) also shows predictions of NO_2 for the same date, scenario and locations. However, the figures are different, except for NSSUE1, 2 and 3. (i) Please will the Applicant comment and explain, and say which the correct figures are?	(i) Apologies for this. Some data has been incorrectly transcribed into Table 9.15, which resulted from an earlier iteration of model outputs that relied on superseded model inputs, which were not significantly different to those used in the final assessment. Corrections have been made as

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			tracked changes in the amended ES chapter submitted with this response (see **Appendix 3**). The corrected values in the amended Table 9.15 show no significant change from the previously submitted results. The maximum contribution from the development in 2021 (0.0µg/m^3) and 2031 (0.2µg/m^3) remain the same. Table A9.11.2 is correct. Table 9.16 is also correct.
		(ii) Please explain if this has any effect on what the assessment is said to be, and clarify.	(ii) The significance of all results in the Tables remains "Negligible". Therefore, the conclusions for the Northampton AQMA No.1, Collingtree, and NSSUE study area assessment, remain the same, i.e.: *"9.5.62 The impact of the Proposed Development on receptors in Collingtree and the NSSUE is expected to remain overall **Negligible** in the interim period.* *9.5.63 The junction improvements to J15 and J15a will likely reduce congestion, and hence pollution, on the M1 adjacent to Collingtree and as such, the above conclusions are likely worst-case."*
2.1.12.		The ExA made the above comparison after checking the figures given in Table 9.16 for PM_{10}s in 2021 without the	With regard to Table 9.16 and Table A9.11.3:

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		development against the figures in Appx 9.11, Table A9.11.3 [APP-218] without the development. The ExA was reassured to see that the figures for PM_{10}s which appear in Table 9.16 are NOT the same as those in Appx 9.11 which appear to be erroneous - see the ExA's earlier question on the figures for NO_2 and PM_{10} in the two tables in Appx 11 being the same. (i) In view of the ExA's comments above on the figures in Table 9.15, please will the Applicant comment and say whether the figures in Table 9.16 should be inserted into Table A9.11.3 in place of those there at present or whether some other figures should go into that table, in which case, could the Applicant please explain why the figures in Table A9.11.3 for 2021 without the development should be different from the figures in Table 9.16? (ii) Please will the Applicant check the rest of the figures in Table 9.15, 9.16 and Appendix 11 and confirm that they are correct, or direct the ExA to where	i) Yes, the ExA is correct, the PM_{10} "2021 Without" values from Table 9.16 should be inserted into the "Without" column in Table A9.11.3. This has been done in the tracked change ES chapter submitted with this response (see **Appendix 3**). ii) The transcribing errors in Tables 9.15 and A9.11.3 have been corrected in the tracked change ES chapter submitted with this response (see **Appendix 3**).

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		in the chapter appropriate figures are to be found? (iii) Please also clarify the conclusions of the assessment in the light of the answers.	iii) The transcribing errors do not change the overall conclusions of the Construction phase assessment, as stated under Table A9.11.3: *"The impact of NO_2 and PM_{10} emissions associated with traffic from the construction phase of the Proposed Development was predicted to be* ***Negligible*** *at all assessed receptors.* *Considering the above, the construction of the Proposed Development is expected to have an overall* ***Negligible*** *impact."*
2.1.13.	SNC, NBC	At para 9.5.101 the Applicant concludes: "Considering the above, the Proposed Development is expected to have an overall Negligible impact on AQMA No.2. No.6 and No.8, in both 2021, 2031 and in the interim years." Please could the Applicant comment on the fact that there will be an increase in the level of failure to comply in AQMA 6 – see the results at CS2 set out in Table 9.21? This question is put particularly in the light of para 5.13, second bullet, of	The very small modelled increase in NO_2 concentration at the location experiencing the highest NO_2 concentration (i.e. CS1, not CS2) is 0.1µg/m^3 in 2021. This is a very small change that is not significant and which has a negligible impact. This very small change in concentration will not jeopardize attainment of the EU objectives (Limit Values) or delay compliance within the East Midlands Zone. See the Applicant's response at ExQ2.1.34, which references the Court of Appeal case of *R on the Application of Shirley & Anr v Secretary of State for Housing Communities and Local Government & Anr [2019] EWCA Civ 22*. para 33 Lord Justice Lindblom, which presents a judgement on the effect of development on air quality in an AQMA:

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		the NNNPS and Article 4(3) of the Treaty on European Union which includes the obligation that Member States shall "refrain from any measure which could jeopardise the attainment of the Union's objectives". This is also discussed in the opinion of Robert McCracken QC at https://cleanair.london/app/uploads/CAL-322-Robert-McCracken-QC-opinion-for-CAL_Air-Quality-Directive-and-Planning_Signed-061015.pdf and the ExA would appreciate submissions from the Applicant and two district planning authorities on the position in this Application in the light of Article 4(3) and that opinion.	*"…A demonstrable breach of article 13 does not generate some unspecified obligation beyond the preparation and implementation of an air quality plan that complies with article 23. The case law does not suggest, for example, that in such circumstances a Member State must ensure that land use planning powers and duties are exercised in a particular way – such as by imposing a moratorium on grants of planning permission for particular forms of development, or for development of a particular scale, whose effect might be to perpetuate or increase exceedances of limit values, or by ensuring that decisions on such proposals are taken only at ministerial level."* In any case, the very small increase in annual mean NO_2 concentrations predicted at CS1 will not impact compliance with regard to Article 4(3). Northampton is not in a Defra identified location of concern under the National Plan in the East Midlands Zone. Other locations in and around Derby have higher NO_2 concentrations and more significant breaches of the Limit Values. This is why Derby requires a Clean Air Zone (CAZ) to reduce NO_2 concentrations. Northampton does not require a CAZ. Derby could be considered the 'Achilles heel' of the East Midlands Zone, where there is greater risk that the Limit Values might not be achieved in the shortest possible time. The proposed development in Northampton does not create a greater risk that might displace Derby's position as such.

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			Therefore, with regard to NPSNN 5.13 bullet 2, the very small increase in annual mean NO_2 concentrations caused by the proposed development will not "*affect the ability of a non-compliant area to achieve compliance within the most recent timescales reported to the European Commission at the time of the decision"*. With regard to the opinion of Robert McCracken QC issued in 2015, this is an opinion provided to the charity Clean Air for London, which specifically looks at the issues of air quality in London. The more recent Court of Appeal case of *R on the Application of Shirley & Anr v Secretary of State for Housing Communities and Local Government & Anr [2019] EWCA Civ 22* judgement has more current relevance. In any case, in his synopsis, Robert McCracken QC states: *"Where a development would in the locality either make significantly worse an existing breach or significantly delay the achievement of compliance with limit values it must be refused".* (Applicant's underlining). From the Applicant's submitted information, it should be clear to the ExA that the proposed development will not "*make significantly worse an existing breach"* or *"significantly delay the achievement of compliance with limit values"*.
2.1.14.		At 9.5.105 the Applicant concludes that "Changes in annual mean NO_2 concentrations as a result of the Proposed Development are predicted to	Again, apologies for these typographical errors. In para 9.5.105, "SJ9" should be "SJ2".

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		be Negligible in 2031. However, one Substantial Beneficial, one Moderate Beneficial and two Slight Beneficial impacts were predicted in 2021 at receptors SJ4, SJ9 and SJ1 and SJ12, respectively, due to the early operation of the Proposed Development and its highway mitigation measures." Table 9.23 indicates that in 2021 SJ9 exceeds 40 µg/m^3 by 0.1 without the development and by 0.2 µg/m^3 with the development. This is then described as negligible (presumably negligible adverse) rather than Slight Beneficial claimed in para 9.5.105. Please can the Applicant comment on its conclusion in the light of this? This question also applies to the conclusions in para 9.5.109.	In para 9.5.109 (now 9.5.108 in the revised Chapter) "Table 9.24" should be "Table 9.23" and is referring to NO_2. Table 9.23 shows that in 2021 SJ9 changes by 0.1µg.m^{-3} with the development, not 0.2µg.m^{-3} as suggested in the question. This is equivalent to a 0.2% change as a percentage of the NO_2 AQS (i.e. 0.2% of 40µg.m^{-3}). The conclusion in para 9.5.109 is correct. In fact SJ2 and SJ4 show significant improvements in concentrations and SJ9 shows only a minor increase; overall the effect is negligible, and all remain above the AQS. These are corrected in the attached tracked change ES chapter submitted with this response (see **Appendix 3**).
2.1.15.		Para 9.5.133. There is no modelled receptor labelled BL1 on Figure 9.14. Is it the unlabelled receptor on Gayton Road?	The label for BL1 in Figure 9.14 has been masked by the label for the road link. A solution to this display anomaly is presented in an amended Figure 9.14 submitted with the revised Chapter (see **Appendix 3**).
2.1.16.		Para 9.5.158 and Tables 9.33 and 9.34. There are no 2018 baseline data for any	There was no baseline 2018 traffic data available to enable an air quality assessment of Grafton Regis and Potterspury in 2018,

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		of the modelled locations in the Grafton Regis and Pottersbury Study Area. Please will the Applicant explain why and indicate how the predicted no development figures in columns B of those two tables can be relied on?	unlike other parts of the assessment area. Validated NTSM2 traffic data was available for future year ("without" and "with" development) scenarios thus enabling air quality modelling to be undertaken for 2021 and 2031. The air quality modelling used verified local monitoring data from Roade to undertake the assessment in the absence of specific local air quality monitoring data for Grafton Regis and Potterspury – this ensures reliability. The absence of specific model results for 2018 do not affect the conclusions of the assessment, as it is a comparison between the 'with' and 'without' development scenarios in 2021 and 2031 that allows the effect of the development to be assessed. The 2018 baseline scenario would have simply provided an understanding of the change in air quality likely to occur from 2018 to 2021, before any influence from the development.
2.1.17.		At para 9.5.179, part of the Summary of Overall Impact on Local Study Areas, where compliance with the UK National Plan and EU limit values is summarised, the Annual Mean NO2 concentration on the A45 is set out. The 2021 baseline is given as 36 µg/m3 and the 'with Development 2021' position is 36.8 µg/m3. This is on the basis of the "SL-PCM (DfT) baseline + NSTM2 development contribution (with CAZ measures +additional measures)" according to Table 9.37 but on the	There is no difference in baseline concentrations between the 'SL-PCM (DfT) baseline with CAZ measures' (only) and the 'SL-PCM (DfT) baseline with CAZ measures + additional measures' with regard to the SL-PCM modelling undertaken for UK National Plan compliance on the A45. The baseline for both is 36 µg/m^3. The SL-PCM categorises the "additional measures" as those measures undertaken in addition to the National Plan measures; for example, emissions reduction measures undertaken by a local authority such as a local Low Emission Zone or Low Emission Strategy.

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		slightly differently expressed basis "SL-PCM (DfT) baseline (with CAZ measures) + NSTM2 development contribution" in the text of para 9.5.179. Is there a difference and what are the "additional measures" referred to in Table 9.37? Have they been taken into account; please can the Applicant explain how?	The SL-PCM model provides predictions for circa 9,000 roads across the UK. The model was updated in November 2017 and has not since been updated. In some local authorities, there will be a difference between the '*SL-PCM (DfT) baseline with CAZ measures'* and the *'SL-PCM (DfT) baseline with CAZ measures + additional measures'*. At the time of the SL-PCM update (2017), NBC had not adopted their Low Emission Strategy nor quantified their emissions reduction measures for the SL-PCM model. The '*SL-PCM (DfT) baseline with CAZ measures + additional measures'* therefore does not included any additional measures being undertaken by NBC. The SL-PCM modelling assessment therefore presents a conservative (worst-case) modelling approach. Although it is difficult to quantify the future NBC Low Emission Strategy measures they are likely to (and intended to) affect improvements in local emissions and improve air quality along the A45.
2.1.18.		Para 9.5.180 and Table 9.37 - Effect on the A45 and the East Midlands Zone. This para and Table give the maximum NO2 concentration modelled for 2021 as 36.8 µg/m3 with the development. Why is the 2031 position not given? Also, while the A45 will have a change of +0.8 µg/m3, would it be relevant to look at the change in the East Midlands Zone	The 2031 result was not provided as the 2021 maximum NO_2 concentration modelled using SL-PCM determined that the East Midlands Zone would be compliant. 2021 is a worst case year for compliance, as the A45 would have only recently become compliant in 2020. The SL-PCM baseline concentrations will improve toward 2031 and therefore pollutants will be lower in future years and remain in compliance. Roadside concentrations on the A45 are predicted to

ExQ2	Question to:	Question:	Applicant's Response
		as a whole and is that to be found elsewhere in the Chapter? What will the position be at Derby and Nottingham, and will the development affect their progress?	be 24.0 µg/m^3 in 2030 (there is no prediction available beyond this – i.e. for 2031), demonstrating a year on year reduction since 2021. Para. 9.5.181 of the ES states *"The location and zone will, therefore, continue to be in compliance with both the UK National Plan and EU objectives"*. The A45 was selected as the worst-case local site in the East Midlands Zone where impacts from the proposed development would occur. This is because it is the closest location of current non-compliance and would be affected by the highest increase in development traffic. No other location in the East Midlands Zone would be more significantly affected. The results of the modelling showed that at this worst-case location, there would be no risk to the zone of not achieving compliance. Commute times to the main site from Nottingham and Derby would be over an hour and hence development-generated car trips in these cities would be negligible. It is highly unlikely that national HGV traffic associated with the development would travel on roads that fall within AQMAs in Nottingham and Derby. If there was a specific end user served by Northampton Gateway and located within/near the AQMAs in one or both of these cities then they would need to comply with the relevant CAZ requirements for Nottingham or Derby as appropriate. Therefore, the proposed development will not affect the progress of the CAZs or affect compliance of the East Midlands.

ExQ2	Question to:	Question:	Applicant's Response
2.1.19.		Para 9.6.3 on Dust Mitigation says "The highest risk activities will be avoided in the areas of the Main Site closest to sensitive receptors. These are shown as a Priority Dust Mitigation Zone on Figures 9.1, 9.2, 9.3 and 9.4. However, there do not appear to be any such zones on those Figures and they are referred to only in the Legend of Figs 9.1 and 9.2. Please will the Applicant explain where they are described in the text so that the ExA can understand where they are and provide updated figures to show these zones? Please can the Applicant also explain how this mitigation is secured? The Priority Dust Mitigation Zones do not appear to be mentioned in the Commitments Tracker (Doc 6.11A [REP3-003]).	Paragraph 9.6.3 states that the Priority Dust Mitigation Zones were applied only to the Main Site. This is because construction activities will likely present a greater dust risk to nearby sensitive receptors at the Main Site than at the highways improvement locations in Figure 9.4 (note that no sensitive receptors were identified within 20m of construction activities in Figure 9.3). The Priority Dust Mitigation Zones are detailed in Figures 9.1 and 9.2, however, the pink coloured graphic does not show up in the figures very well as these are small areas that are adjacent to red coloured borders (lines). Amended Figures making these zones more clear are submitted with the updated ES Chapter (see **Appendix 3**). Measures to mitigate dust emissions in these zones will be secured by the CEMP, which states: "7.3 *Contractors will plan their activities to reduce the level of risk and mitigate any residual impacts."* And *"7.6 In planning his activities, contractors should consider the following as a minimum: […]* *The siting of dust generating activities relative to sensitive receptors."*

ExQ2	Question to:	Question:	Applicant's Response
			The P-CEMP to be approved in respect of each phase will be required to show how the contractor intends to satisfy those requirements.
2.1.20.		Mitigation - section 9.6 and paras 9.6.1 to 9.6.4. These paras give examples of mitigation which could be employed during construction, but paragraph 9.6.4 specifically says only that they have been used "to contribute" to the CEMP. Furthermore, Appx 9.8 (Doc 5.2 [APP-215]), which is also referred to as a list of mitigation measures, states in its opening paragraphs that whilst they are highly recommended by the IAQM and have been taken into account when formulating the CEMP, it is NOT a list of commitments or actions planned to be taken. Please will the Applicant clarify the position and point to where the ES states what specific mitigation measures are proposed for air quality effects, and the expected residual effects? The ExA is aware of the Commitments Tracker.	While the list of IAQM recommended measures at ES Appendix 9.8 (**Document 5.2** [APP-215]) is not intended to serve in its entirety as a list of commitments, Part 7 of the CEMP lists a wide range of dust management air quality measures. Comparison of the list of recommended IAQM measures for the mitigation of air quality/dust construction effects with the CEMP shows that many of the measures have been adopted in the CEMP. The Applicant intends to amend the CEMP for **Deadline 6** to ensure that all mitigation measures upon which the assessment is based are incorporated in the CEMP. This therefore puts beyond doubt the need for the RPA or RHA to refer back to the ES and provides certainty as to the mitigation measures upon which the assessment was based and the measure that are enforceable through in the Requirement. However, as the Chapter mentions, that is not to say that all mitigation measures will be incorporated in all cases, the P-CEMP will include the relevant measures to be taken for that specific element.

ExQ2	Question to:	Question:	Applicant's Response
		This is an issue of wider relevance to the Application and the Proposed Development; how in practice, if the DCO is made, will the relevant planning authority (RPA) be able to ensure that the mitigation referred to in the ES is delivered? The CEMP is a major tool in that process, as are the P-CEMPS approved under Requirement 12, working with the Requirements, the s.106 agreement and the Commitments Tracker. It seems to the ExA that the RPAs will also need to refer to the ES to ascertain whether the submissions under the Requirements are compliant. Is that the process anticipated?	
2.1.21.		Mitigation - aggregates terminal. Para 9.6.5 and following. It is stated that a range of standard and best practice measures will be implemented. Please could the Applicant indicate where they are described in the ES or where the method of determining them is to be found? For example, dampening of haul routes is specified in para 9.6.5 but this is not part of Requirement 8 and does not appear in the Commitments Tracker (Doc 6.11A)[REP3-003]	See ExQ2.1.20 above. Paragraph 9.6.5 refers specifically to the aggregates terminal. The term 'haul routes' generally applies to the construction phase as opposed to the operational phase, but there are sometimes parallels for operational aggregates sites depending on the scale and type of materials stored and moved. Requirement 8 of the DCO ('detailed design approval') has been amended to include an explicit and specific need to provide (and agree) details of the water suppression system, and wheel washing facilities, associated with the aggregates terminal.

ExQ2	Question to:	Question:	Applicant's Response
		It is also said in that para that some are similar to those outlined in para 9.3.278. There is no such paragraph. Please will the Applicant specify the correct paragraph?	The reference to paragraph 9.3.278 is an error – this should make cross-reference to sections of the ES chapter dealing with construction track-out and haul routes and the techniques to reduce dust emissions through water dampening, etc. – the reference should be to 9.6.1 and Appendix 9.8 and this has been corrected in the revised Chapter submitted at **Appendix 3**.
2.1.22.		Para 9.6.6 - please could the Applicant specify the "other modal shift support initiatives" referred to in this paragraph, and the method (requirements, s.106 or other) to secure these?	Paragraph 9.6.6 refers explicitly to the Framework Travel Plan (FTP) and Public Transport Strategy (PTS), and gives a list of examples of measures proposed through those two documents to deliver a modal shift in travel behaviour towards more sustainable modes. 'Other' modal shift initiatives beyond those listed are found in those same submitted documents and these are secured through Requirement 4 and Requirement 8. As described in the FTP (secured through Requirement 4 and Schedule 15 of the dDCO), an area-wide (site wide) Travel Plan Coordinator will be appointed to oversee and coordinate some measures across the site as a whole, working with individual occupiers. Other measures include those listed in Section 6 of the FTP (**Document 5.2**, Appendix 12.1, TA Appendix 1 [APP-232]), including, but not limited to the following: • Encouraging and promoting car sharing and creating car sharing clubs and databases; • Incentives to support walking and cycling – such as through production and dissemination of an 'active travel map' of

ExQ2	Question to:	Question:	Applicant's Response
			walking and cycling routes, and encouraging Cycle 2Work schemes by occupiers; • Disseminating information and encouraging walking and cycling events in the local area; • Provision of shower facilities, changing rooms and locker facilities; and • 'Taster' bus ticket promotion and special offers to encourage bus use. If the ExA is keen to see the full list of measures and initiatives it is located in Table 4 of the FTP. This confirms, as indicated in paragraph 9.6.6, that the FTP sets out a range of measures and initiatives to encourage modal shift, and which will inform the occupier specific travel plans for the site in due course. The occupier specific travel plans are secured by Requirement 4.
2.1.23.	Northampton County Council (NCC), SNC, NBC	Para 9.6.6 – are NCC, SNC and NBC satisfied that the objectives, targets and indicators of the Framework Travel Plan (FTP) - Environmental Statement Appendix 12.1 TA Appendix 1 Framework Travel Plan (Doc 5.2 [APP-232]) - will be achieved? How do they envisage attaining them will be enforced? Please would they explain what mechanisms and sanctions they would expect to use and against whom? The FTP forms an identified mitigation in the	In terms of the air quality assessment, the Proposed Development is not reliant on the implementation of the Framework Travel Plan (FTP) and Public Transport Strategy (PTS). The assessment is consistent with the outputs from the Transport Assessment which considers a worst case scenario in terms of traffic and travel with no adjustments or reductions applied as a result of FTP and PTS measures. In this regard, it is important to understand that the FTP and PTS do not represent 'mitigation' – they are now adopted as Requirements or commitments for the scheme, and will deliver benefits through best practice measures, but this is not driven by a need to deliver mitigation for adverse effects.

ExQ2	Question to:	Question:	Applicant's Response
		Air Quality Chapter (para 9.6.6). It would be helpful to have worked examples. The Applicant may also wish to provide one or more worked examples. The ExA suggests at least the following scenario, taking Table 3 of the FTP:- 1 Car sharing (Objective 2). By 2031 only 6% of employee trips are made by car sharing. (The indicator and target are 12%.) All employers on site have fully complied with the objective of encouraging car sharing. In the case of employer A, the biggest employer on site, only 3% of the employee trips are car shares. In the case of employer B who has only 20 employees, 20% are car shares. In the case of employer C, 12% are car shares. Against whom can NCC, SNC and NBC enforce, and what will the sanctions be? How is achievement of the target and indicator delivered?	The FTP has been developed in accordance with NCC's Travel Plan Guidance, meeting their requirements in full. The FTP has been endorsed and approved by NCC (as confirmed in the SoCG with NCC (**Documents 7.5** [AS-006] **and 7.5A** [REP1-009]). The FTP outlines a comprehensive monitoring and review programme (Chapter 8 of the FTP) meaning progress of the Travel Plan will be reviewed against the travel plan targets annually. Based on this annual report the area-wide Travel Plan Co-Ordinator, Sustainable Transport Working Group (STWG) and NCC will discuss if travel plan targets and measures need to be revised and if remedial action needs to be taken. Paragraph 9.5-9.8 of the FTP outlines fall-back measures that could be implemented in the event of an occupier not achieving its travel plan targets. The measures set out are intended to be tailored and mode-specific campaigns to incentivise greater use and adoption of Travel Plan initiatives. In the case of the example given in the ExQ, targeted and tailored measures/campaigns for the lowest achieving units (in relation to car sharing) could include the below (also outlined in para 9.7 of the FTP): • Car share network events to help employees find a car share partner • Emergency 'guaranteed ride home' promotion • Accrual in annual leave for car sharers • Monthly prize draw for employees who car share

ExQ2	Question to:	Question:	Applicant's Response
			Furthermore, a failure of individual occupier Travel Plans to be brought-forward or implemented properly would represent a breach of DCO Requirement 4(2). Roxhill has directly comparable experience from the current delivery of a similar FTP and PTS at the East Midlands Gateway (EMG) SRFI. Whilst the site is in the early stages of development, and hence mode shift outcomes are not yet available, it demonstrates how the mechanics of establishing a FTP which is overseen by a Sustainable Transport Working Group (STWG) comprising key local stakeholders can work in practice. At EMG Roxhill has met all pre-occupation conditions relating to the FTP and PTS, with two STWG meetings held in advance of occupation, offering a forum whereby the detailed measures are challenged, and where necessary adapted, to reflect the current circumstances and best practice. Please also refer to the Applicant's response to DCO:16 (**Document 8.19**).
2.1.24.	NCC, SNC, NBC	(i) Para 9.6.6 – are NCC, SNC and NBC satisfied that the Overarching Aim of the Public Transport Strategy – Doc 5.2 [APP-233] - Environmental Statement Appendix 12.1 TA Appendix 2 Public Transport Strategy (PTS) - (see para 7.1 thereof) and the main target (see para 7.5) will be achieved?	(i) The PTS, its targets and aims, have been developed with direct input from NCC, and have been approved by NCC (as confirmed in the SoCG with NCC (**Documents 7.5** [AS-006] **and 7.5A** [REP1-009]).

ExQ2	Question to:	Question:	Applicant's Response
		(ii) How do they envisage attaining the Overarching Aim and the main target will be enforced? Please would they explain what mechanisms and sanctions they would expect to use and against whom? The PTS forms identified mitigation in the Air Quality Chapter (para 9.6.6). It would be helpful to have worked examples. As with ExQ 2.1.24, the Applicant may also wish to provide one or more worked examples.	(ii) The PTS is a sub-strategy of the FTP outlining in more detail how public transport will be developed for the site. As such it is covered by the same measures and actions outlined in the FTP. The FTP outlines a comprehensive monitoring and review programme (Chapter 8 of the FTP) meaning progress of the Travel Plan will be reviewed against the travel plan targets annually. Based on this annual report the area-wide TPC, Sustainable Transport Working Group and NCC will discuss if travel plan targets and measures need to be revised and if remedial action needs to be taken. Please also see the response to ExQ2.1.23 above which is directly relevant with regard to monitoring and enforcement, and in terms of the Applicant's practical experience of implementation at East Midlands Gateway.
		(iii) Is the aim sufficiently precise so that a breach can be identified?	(iii) The aims and targets of the PTS have been developed with direct input from NCC, built around the requirements of their Bus Strategy. The PTS (and FTP) have been approved by NCC.
		(iv) The main target is that "10% of staff working at the NGSRFI should use the bus as their primary mode of transport to and from the site, within 5 years of the site being fully open". What is the meaning of "fully open"? Could the	(iv) The bus service to/from the site will be developed in a phased approach as each unit is occupied. As part of the pre-engagement programme, the scale of employment and proposed shift patterns will be considered in light of the trigger for providing a bus journey to the site (7.11 in the PTS), the bus service will

ExQ2	Question to:	Question:	Applicant's Response
		developer avoid the obligation to achieve the target by not "fully opening"?	then be developed accordingly ahead of each unit becoming occupied. Using this methodology ensures that the Public Transport Strategy can be responsive and can develop a bus network that is built around actual demand. The target end date of 5 years after being fully open recognises that the bus service will be evolving during the development of the site, and that it may take time to influence individuals to swap their mode of travel away from the private car. There will still be an expectation that individual units will aim for 10% mode share for bus through the delivery of their Occupier Travel Plans after their individual occupation.
		(v) As with the FTP, against whom is the PTS enforced if the 10% target is not met where, say, 20% of the workforce of one employer use the bus, only 5% of the workforce or another employer do so and other employers are at or above the 10% figure?	(v) The 10% target is for the site as a whole. The FTP recognises (and allows for) a need to be responsive to local need and flexible to future priorities and conditions – it has been developed so measures can be specifically tailored to individual warehouse and/or the site as a whole to meet the target. Paragraph 9.5-9.8 of the FTP outlines fall-back measures that are to be implemented in the event of a Unit not achieving its travel plan targets. These measures are intended to be tailored and mode-specific campaigns to incentivise its use. In the case of the example given in the ExQ, targeted and tailored measures/campaigns for the lowest

ExQ2	Question to:	Question:	Applicant's Response
			achieving units (in relation to public transport use) could include the below (outlined in para 9.7 of the FTP): • Intensive sprint campaigns for particular modes of transport • Taster tickets for buses which serve the Gateway (area-wide) • Targeted marketing campaign of the bus discounts achieved by frequent bus use • Interest free loans to purchase season tickets • Emergency guaranteed ride home promotion
		(vi) Some new construction – such as bus lay-bys – is required by the PTS. Are those part of the "authorised development" describes in the dDCO? Does the Applicant control the land needed? If the answer to either question is not "Yes", how will that construction be delivered? If the answer is "Yes" please will the Applicant indicate which parts of the authorised development they form and the land control position?	(vi) The public transport strategy contains various reference to the bus stop infrastructure (paras 7.15 to 7.18) and includes the following references to lay-bys: • Para 7.14 (below the heading "Connecting to the Existing Network"), lay-bys on the A508 either side of the new site access roundabout • Para 7.18, lay-bys for the bus stop infrastructure within the main site and on the A508 adjacent and opposite the site entrance • Para 7,20, south-bound bus stop and lay-by on the A508 The Applicant can confirm that all of the bus stop infrastructure measures within the PTS are part of the authorised development and on land under the control of the Applicant. Specifically it is confirmed that:

ExQ2	Question to:	Question:	Applicant's Response
			• The lay-bys referred to on the A508 are to be constructed as part of Works No. 7 and are shown on the highway plans (Document 2.4C) • The bus stop infrastructure within the main site is to be constructed as part of Works No. 5. Please also refer to the Applicant's response to DCO:16 (**Document 8.19**).
2.1.25.	NCC, SNC, NBC	Both the FTP and the PTS use the term "employee". Given that large parts of the general workforce are often engaged as self-employed (independent contractors), how is it intended to ensure that such persons are included in the objectives, targets, aims, indicators and generally the ambit of the FTP and PTS?	The Applicant has added a new Requirement 4(4) to clarify this. Please see updated dDCO submitted for **Deadline 5** (**Document 3.1D**).
2.1.26.	NBC	Para 9.6.10 states: "The potential to reduce the significance of adverse impacts in AQMA No.4 have been discussed with Northampton Borough Council, and the detail is being explored further. Measures being considered include supporting the introduction of cleaner Euro VI class buses for the dedicated SRFI express bus service. The applicant has also indicated a willingness to make a contribution to enable delivery	Discussions have now been concluded with NBC the result of which is as follows: 1. The addition of Requirement 4(5) the wording of which has been agreed with NBC and was first included in **Document 3.1C** submitted for **Deadline 4** as Requirement 4(4); and 2. The provisions in the s.106 Agreement (**Document 6.4B**) which have been agreed with NBC (and the other authorities) which provide for a contribution of £250,000.00

ExQ2	Question to:	Question:	Applicant's Response
		of new electric vehicle charging points or other low emission initiatives for Northampton in support of the Council's Low Emissions Strategy." Please will the Applicant and NBC state what is the result of those discussions and, if not concluded, when it is expected that they will be finished and when and how the results will be reported to the Examination?	towards air quality measures to further the aims of the Borough Council's low emissions strategy. Although the development does not give rise to any significant adverse air quality impacts, there will be some trip increases within Northampton AQMA arising from the development. The impacts are small and will not affect the East Midlands Zone coming into compliance, but the contribution made will assist the Borough Council in the implementation of its low emissions strategy.
2.1.27.	SNC, NBC	In relation to AQMA 4, it is stated at para 9.6.11 that it is "considered that proposed mitigation strategies should focus on non-HGV measures. As such the mitigation strategy focuses on encouraging and enabling modal shift toward adopting vehicles with cleaner engines and providing more frequent bus services to support reduced emissions within the AQMAs". Please will the Applicant explain how it is considered this is an important and relevant matter and meets the policy tests if, as the para states at its opening, the HGV traffic from the proposed SRFI is only a small fraction? This question is also addressed to SNC and NBC.	Please see response to ExQ2.1.26 above.

ExQ2	Question to:	Question:	Applicant's Response
		It is unclear whether the mitigation strategy is referring to modal shift in buses or HGVs. Please will the Applicant clarify this and also specify what is being referred to by the phrase "mitigation strategy" – is it the "public transport strategy"?	The mitigation strategy referred to is the public transport strategy, now secured by Requirement 4(5).
2.1.28.		Para 9.7.8 – Please could the Applicant direct the ExA to where it can find the conclusions on the Daily Mean and the Hourly Mean?	Para 9.7.8 refers to the annual mean NO_2 and PM_{10} AQSs. These are the principal pollutants and averaging periods that are assessed in order to determine non-compliance with the EU limit values and AQSs in the UK. The short-term averaging periods AQSs (daily mean and hourly mean – as referred to in the question) are not. The assessment follows Defra guidance (LAQM.TG(16) para. 7.90-91 and 7.92-93) which provides calculations from the annual mean results to determine if a short-term result is likely to be in exceedance. Impacts on daily-mean and hourly mean concentrations are shown to be below thresholds in all study areas (e.g. para 9.5.68, which discusses impacts on the daily mean PM_{10} AQS, and para 9.5.67, which discusses impacts on the hourly mean NO_2 standard). Impacts are concluded to be not significant. There are no final remarks in the conclusion regarding daily mean and hourly mean concentrations as the judgement of overall significance is based principally on annual mean concentrations, which are the more significant parameters on which to judge air quality in the context of EU limit compliance.

ExQ2	Question to:	Question:	Applicant's Response
2.1.29.		Para 9.8.2 – Please could the Applicant explain why Rathvilly Farm and Lodge Farm, which are both in the overlap area, are not considered to be sensitive areas?	Rathvilly Farm and Lodge Farm are within the order limits of Rail Central (RC) and would therefore be demolished in this scenario. This is confirmed by the RC Parameters Plan, (RC document reference 2.14.1, Parameters Plan 2 of 2) which identifies numerous buildings, including these farms, to be demolished in the eastern part of the Rail Central site.
2.1.30.		Para 9.8.5 moves straight from referring to the Rail Central proposals to concluding that cumulatively there will be no change of any significance at any receptor. Please will the Applicant explain more fully how it reached this conclusion?	There was no change in significance at any receptor due to the combined operation of the Rail Central and Northampton Gateway schemes when compared to just the individual Impact of Northampton Gateway. As such, the cumulative impact can be considered Negligible in significance.
2.1.31.		Conclusions. Para 9.9.7 - does the last sentence say what the Applicant actually concludes? It reads "This is pertinent to the central Northampton AQMAs as the proposed highways improvements will cause the most significant air quality impacts to be caused by such vehicles" (sic). Please could the Applicant explain and comment, and point the ExA to the air quality impacts of the highways improvements? What impacts will the highways improvements cause? Is the point intended to be that there is a	The original wording of the final sentence of paragraph 9.9.7 was not worded clearly, and the Applicant welcomes the opportunity to clarify it (please see amended Chapter at **Appendix 3**). Paragraph 9.9.7 of the Chapter should <u>not</u> be taken to suggest that there will be significant air quality impacts in AQMA areas. The Travel Plan measures will have the greatest positive (improvement) effects on town centre bus and car travel, which are the causes of elevated emissions that led to the declaration of the urban and town centre AQMAs. As referred to in other responses, the Air Quality assessment (and Transport Assessment) makes no allowance for reductions in car travel as a result of Travel Plan measures or the Public Transport Strategy proposed. Paragraph

ExQ2	Question to:	Question:	Applicant's Response
		positive impact? Please could the Applicant clarify this paragraph?	9.9.6 seeks to underline the 'worst-case' nature of the assessment in this regard, and to identify that given that it is car traffic which would contribute most to any changes in the AQMAs, any Travel Plan generated reductions compared to the Transport Assessment forecasts would be of benefit to the AQMAs. The proposed highway mitigation works will cause a re-distribution (reassignment) of existing traffic, particularly cars, in parts of Northampton. In some cases, traffic will be re-distributed away from AQMAs, decreasing pollution concentrations there (e.g. decrease in NO_2 concentrations are predicted in AQMA no.3 in Table 9.23 with the development in 2021, at receptors SJ1-5 and SJ11-16). In some other areas traffic will be re-distributed through AQMAs, altering local pollution concentrations slightly at some receptors (e.g. in 2021 at AQMA no.8, Table 9.21 receptor CS1 and AQMA no.3, Table 9.23 at receptor SJ9). However, it is not possible to isolate these reassignment effects of the highway improvements from traffic associated directly with the operation of the proposed development, and the Transport Assessment and Air Quality Assessment deal with the transport changes as a whole. None of the changes likely in the AQMAs will be significant with overall beneficial impacts likely across the wider area. Similarly, it is not possible to separate Travel Plan effects from the traffic data provided for the air quality modelling or to reasonably test the wide range of potentially diverse future scenarios associated with NBC's Air Quality Action plan and Low Emissions Strategy. These measures are to be undertaken to reduce emissions in Northampton and the wider area, however as the

ExQ2	Question to:	Question:	Applicant's Response
			impact of these measures has yet to be quantified, it is unknown how much benefit these measures will bring. Through the travel plan and by supporting the low emission strategy, the proposed development will deliver a contribution of circa £1.1 million to fund the public transport strategy, the provision of 10% Electric Vehicle charging points and a contribution of £250,000.00 to facilitate and/or support NBC's recommended strategic low emission strategy initiatives such as: • Clean Air Zone Feasibility Study; • Implementing the Northampton Electric Vehicle Plan; • Provision of Cycling Hubs; and • Ultra-Low Emission Hubs Corridors.
2.1.32.	SNC, NBC, NCC	Monitoring – this is a general question which applies across the ES. In its reply to ExQ1.0.18 about monitoring and the requirements of the Infrastructure Planning (EIA) Regulations 2017 the Applicant wrote: "The Applicant proposes to update the Commitments Tracker (Document 6.11, APP-381) to include monitoring arrangements. It is proposed to submit this for Deadline 3". There are references to monitoring in the updated Tracker (Doc 6.11A [REP3-003]) but it is not clear what steps should be taken if monitoring indicates that the results are	In this regard the Proposed Development is no different to any other major development. It is understood by all parties that the EIA process is intended to identify potential likely environmental effects, usually based on a worst-case set of assumptions, and identifies mitigation measures where needed to minimise the likely effects. These measures are secured via Requirements and via the Section 106, as appropriate. The Applicant has agreed SoCGs (**Documents 7.10** [REP1-014] **and 7.11** [AS-058]) with the RPAs regarding the Proposed Development. If these bodies have particular issues or concerns regarding specific potential effects and a need for specific monitoring, there has been ongoing dialogue and opportunity for these to be raised.

ExQ2	Question to:	Question:	Applicant's Response
		worse than expected or permitted. The second part of question ExQ1.1.34 is reiterated; could the Applicant explain the extent to which monitoring measures are required to demonstrate the efficacy of the mitigation measures proposed and how such monitoring measures would be secured? (i) Please will the Applicant, SNC, NBC and NCC comment on what should be included, if anything, in the DCO, if made? (ii) Given the relative newness of the need to consider monitoring and remediation, please will those parties set out their understanding of the approach the SoS should take, and criteria, in deciding whether to require either or both monitoring or remediation?	In the Applicant's view: i) Through the Requirements, the Applicant is required to agree a range of details, including phase specific P-CEMPS (Requirement 12), to control and mitigate identified potential construction effects from the EIA process. Other Requirements require monitoring activity, including regarding operational noise (Requirement 23 (2), and Requirement 24), and monitoring as part of the Travel Plans required by Requirement 4 ii) The DCO as drafted and amended in light of earlier comments and suggestions addresses the need for ongoing monitoring.

ExQ2	Question to:	Question:	Applicant's Response
2.1.33.		$PM_{2.5}$s. At ISH2, the Applicant's counsel (Mr Alexander Booth QC) indicated that the Applicant would wish to respond in writing. This has been done at Appx 6 of the Applicant's post-ISH2 submissions (Doc 8.10 [REP4-011]). In Appx 6 the Applicant writes: "LAQM.TG(16) recognises that the majority PM2.5 comes from non-localised sources i.e. transported regionally and across international boundaries. The regional, international contributions of annual mean ambient PM2.5 concentrations at urban background locations in the UK are 45% and 20% respectively, with local urban traffic only responsible for approx. 14% of concentrations (Defra1)." Please could the Applicant state what contribution to the 14% would be made by the Proposed Development? Please express the answer both as a percentage of the 14% and as a percentage of the overall 100% of $PM_{2.5}$s.	The Applicant cannot apportion the percentage contributions to $PM_{2.5}$ concentrations caused by the development. It can only state that the development will contribute towards the UK and EU targets to work towards exposure reduction targets. Approximately 14% of total $PM_{2.5}$ at background locations is attributed to road traffic across the whole UK. This figure is the average $PM_{2.5}$ from multiple road sources. Due to its transboundary (long range) nature, $PM_{2.5}$ from road sources includes nearby local roads as well as regional A-roads, national motorways and smaller roads that are significantly further afield. Localised road traffic is therefore not a significant contributor to $PM_{2.5}$. The proposed development would not influence the percentage of the 14% of total $PM_{2.5}$ or the overall 100% $PM_{2.5}$. Overall the development will benefit emissions of $PM_{2.5}$ by removing significant HGV movements (para. 9.3.44) from the national road network. A reduction of 23 million HGV miles by transferring freight onto rail will correspondingly reduce tail-pipe emissions of $PM_{2.5,}$ and assist in the reduction of overall UK $PM_{2.5}$.

ExQ2	Question to:	Question:	Applicant's Response
2.1.34.	SNC, NBC	Judgment was handed down on 25 January 2019 in the case of *R. (oao Shirley) v. Secretary of State for Housing, Communities and Local* Government *[2019] EWCA Civ 22* concerning the SoS's duty to give effect to the objectives of the Air Quality Directive. On 14 January 2019 the Government published the "Clean Air Strategy 2019". On 5 October 2018 the Government published a Supplement to the UK plan for tackling roadside nitrogen dioxide concentrations. Please will the Applicant, SNC and NBC comment on the effect of these developments on the application and its consideration by the ExA and the SoS? Other parties who wish to may also of course make submissions.	Regarding the Court of Appeal case of *R on the Application of Shirley & Anr v Secretary of State for Housing Communities and Local Government & Anr [2019] EWCA Civ 22.* In para. 33 of the Judgement Lord Justice Lindblom considered a breach of Article 13 and states: *"…A demonstrable breach of article 13 does not generate some unspecified obligation beyond the preparation and implementation of an air quality plan that complies with article 23. The case law does not suggest, for example, that in such circumstances a Member State must ensure that land use planning powers and duties are exercised in a particular way – such as by imposing a moratorium on grants of planning permission for particular forms of development, or for development of a particular scale, whose effect might be to perpetuate or increase exceedances of limit values, or by ensuring that decisions on such proposals are taken only at ministerial level."* Moreover, in para 40 Lord Justice Lindblom continues: *"…None of the provisions of the Air Quality Directive engages with the process of making decisions to authorize individual projects of development. If a proposed development would cause a limit value to be breached, or delay the remediation of such a breach, or worsen air quality in a particular area, neither the Air Quality Directive nor the 2010 regulations states that planning permission must be withheld or granted only subject to particular conditions. These may of course be material considerations when an*

ExQ2	Question to:	Question:	Applicant's Response
			application or appeal is decided, and so too the measures in an air quality plan for the relevant zone, if there is one, or in an action plan prepared under the Environment Act 1995. But the Air Quality Directive and the 2010 regulations do not, in those or any other circumstances, compel the decision-maker to refuse planning permission, or impose on the Secretary of State an obligation to make the decision himself.". The proposed development would not significantly increase non-compliance with the Limit Values. Air quality effects should not, therefore, be determinative in any decision. The UK Clear Air Strategy (CAS) focuses mainly on non-road sources and not on the planning of proposed developments. The CAS seeks to improve air quality through strategic measures; some measures will influence the uptake of low emission vehicles and encourage local authorities to implement CAZs and, as proposed by Northampton BC, a Low Emission Strategy. The types of vehicles visiting, commuting, busing-in and using the proposed development will therefore likely to be cleaner/low emission vehicles as a result of these strategic measures, thus supporting the general aims of the CAS to improve air quality. The National Plan (update) will also influence reductions in emissions, close to the CAZ cities, and will also influence any vehicles travelling through them. As above, the development will therefore likely have cleaner/low emissions vehicles travelling through CAZs and so these cleaner vehicles will also benefit air quality locally as well.

ExQ2	Question to:	Question:	Applicant's Response
			At the strategic (national) level, the Proposed Development will make a direct contribution towards improving national air quality by enabling the shift of freight from road to rail. As set out in the submitted application (at paragraph 9.9.4) and in the Transport Assessment (paras 5.4 to 5.10), overall the Proposed Development could lead to nationwide HGV load reductions equivalent to 92 million fewer HGV miles per year based on a worked example of realistic changes to existing distribution patterns.
2.1.35.		At ISH 2 in response to a question from Mr Bryce about the effect of the lorries on the M1 on air quality, Mr Jenkins for the Applicant said that the figures take account of annual emissions, so delays and blockages are addressed. – see 1.18.30 onwards in Part 2 of the recording of ISH2. The ExA observes that the Air Quality chapter uses the NDSM data. Later in ISH2 when considering transport (at 1.41.09 onwards of Pt 2 of the ISH recording) the ExA raised concerns expressed by Mr Declan Waters in his Relevant Representations [REP1-077] – had A508 been satisfactorily modelled as a bypass route for the M1 closures? Has	The Air Quality assessment used NSTM2 traffic data and actual air quality monitoring data sets to verify and validate the air quality model results. The NTSM2 traffic model was used to simulate annual average daily traffic (AADT) flows for the air quality model and produced traffic flows which included normalised traffic movements. This NTSM2 data set averages out traffic flows. However, in the process of verifying the air quality model, real-time air quality monitoring data was used, which considers actual measured concentrations from traffic sites which would have been exposed to real-world traffic congestion situations during the sample periods. The effects of congestion on air pollution concentrations on the A508 were, therefore, considered by the real-world monitoring data incorporated into the air dispersion model. Delays due to congestion are also inherently modelled in the NSTM2, as they impact upon driver route choice and journey times,

ExQ2	Question to:	Question:	Applicant's Response
		modelling incorporated the effect of the M1 closures - which are 16-17 times per annum? In reply, Mr Dunhill or Mr Hilditch for the Applicant said: "Not using the NSDM model. But we do know about it and have considered it. It is required to operate as a diversion route. There are a number of bottlenecks and pinch-points. Our approach is that it is reasonable, that the improvements and especially the Roade Bypass will provide more resilience. The A508 improvements will improve the position. The worst case is a southbound closure of M1 between Junctions 15 and 14 which leads to south-bound traffic going down the A508. There would be about 6,000 vehicles per hour in the peak hour. Development vehicles which would have gone southbound on M1 are 200 so there is only 3.5% increase on the corridor which we think is acceptable". At first sight there may be an inconsistency here. Mr Jenkins, on the basis of a study which uses the traffic predictions from the NDSM, says that	which are reflected in the traffic data outputs from the NSTM2. However, the NSTM2 was not used to model specific instances of road closures (blockages), for example when the A508 is required to be used as an emergency diversion route in the event of a closure of the M1. However, and as explained at ISH2 the impact of the Proposed Development on the A508 during such a road closure has been considered. This is summarised at paragraph 2.37 of the Applicant's Post Hearing Submissions (**Document 8.10** [REP4-011]).

ExQ2	Question to:	Question:	Applicant's Response
		delays and blockages are addressed. Mr Dunhill/Hilditch says that on the basis of the traffic study they are addressed, but not through the NDSM figures. Please could the Applicant clarify whether the effects of delays and blockages and the use of the A508 as a diversion route have indeed been addressed in the Air Quality and Transport assessments, and point to the sections which show how, and explain?	
2.2.	**Biodiversity, Ecology and Natural Environment**		
2.2.1.	The Applicant	Paragraph references are to those in ES Chapter 5 (Ecology and Nature Conservation) (Doc 5.2 [APP-088]) unless stated otherwise. As referred to in post-hearing submissions (Doc 8.10 [REP4-011]), could the Applicant please provide copies of anticipated 'letters of no impediment' from Natural England in respect of European protected species licences?	These were submitted to the ExA on 11 February 2019.

ExQ2	Question to:	Question:	Applicant's Response
2.2.2.	Natural England	Further to the SoCG (Doc 7.15 [REP1-018]) can Natural England confirm that it is satisfied as to the protection of the Roade Cutting SSSI as a result of additions to the updated CEMP [AS-048] which has been accepted as a late submission for Deadline 4?	
2.2.3.	The Applicant	In light of further discussions and representations, are there any further modifications/additions required to the Landscape and Ecological Management Plan (LEMP)? If so, these should be provided by Deadline 6 (19 March 2019).	The Applicant does not believe there is any need to update the LEMP, but to ensure that the management and maintenance of the green infrastructure is subject to scrutiny by the relevant planning authority, an additional Requirement 11(2) has been inserted to the latest dDCO submitted for **Deadline 5** (**Document 3.1D**) to provide that the management and maintenance arrangements be submitted to and approved by the relevant planning authority.
2.2.4.	The Applicant	ES paragraph 5.6.13 refers to increased recreational pressure on designated non-statutory sites of nature conservation interest and also to measures that would be used for control, to be detailed further in the LEMP. The measures include the provision of litter bins though this is not detailed in the LEMP. Can the Applicant clarify and also indicate whether, if these are to be provided, how would their maintenance (e.g. emptying) be secured?	Paragraph 5.6.13 refers to the potential for increased recreation pressures on designated non-statutory sites of nature conservation interest, such as Highgate Wood on the Main Site. It includes a number of example measures which can be used, where appropriate, to manage the potential pressure on natural areas and habitats associated with increased public access to the site including areas of new planting. This is anticipated to include the use of interpretation boards, which are referred to in the LEMP (see 4.48 – 4.50). Although listed as an example in the ES, litter bins are not referred to specifically in the LEMP. To avoid any doubt, the location of these are now specifically included in requirement 8 of the dDCO submitted for **Deadline 5** (**Document 3.1D**). The

ExQ2	Question to:	Question:	Applicant's Response
			maintenance will be covered by virtue of the new requirement 11(2).
2.2.5.	The Applicant	Please will the Applicant clarify how ongoing management and maintenance that is detailed in the LEMP is secured on an ongoing basis, particularly beyond the first five-year survey and review?	Requirement 11 was amended in the version of the dDCO submitted for **Deadline 4** (**Document 3.1C** [REP4-02 (tracked) and REP4-004 (clean)]) to ensure that maintenance must be carried out in accordance with the LEMP. However, the Applicant notes the ExA's implied concern that ongoing management and maintenance may not be adequately dealt with in the LEMP beyond the first five years and accordingly, a new requirement 11(2) has been added to the latest version of the dDCO submitted for **Deadline 5** (**Document 3.1D**).
2.2.6.	The Applicant	Within ES paragraph 5.6.59 reference is made to the 'BMP' and this is later repeated in paras 5.6.60 and 5.6.62. Can the Applicant please clarify whether this is a misprint; is it a reference to the LEMP or to 'Best Practicable Means', or otherwise indicate to what this refers?	The Applicant confirms this should read 'LEMP' in all cases (5.6.59, 5.6.60 and 5.6.62).
2.2.7.	The Applicant	ES paragraph 5.7.21 refers to the adoption of best working practices during construction, including a dust action plan. However, neither the CEMP not the LEMP make reference to this although the former refers to soil management and	

ExQ2	Question to:	Question:	Applicant's Response
		measures for controlling the emission of dust. i) Can the Applicant please clarify whether this constitutes the measures envisaged in the reference to a dust action plan? ii) ES paragraph 5.7.21 refers to the use of dust suppression measures during the operational phase of the Main Site, such as damping down of the aggregates terminal during periods of dry weather. It is noted that the Commitments Tracker (Doc 611A [REP3-003]) indicates that the next iteration of the dDCO will include reference to specific measures proposed as a minimum for the operational aggregates terminal. Are other dust suppression measures envisaged for the Main Site and, if so, what might they be and how would they be secured?	i) References to 'Dust Action Plan' are intended to refer to the 'Dust Management' parts of the CEMP – in simple terms, the Dust Management measures represent what is meant by a 'Dust Action Plan'. This term was used in error, and for consistency should have referred to the relevant terminology used in the CEMP. ii) Other dust suppression measures on the Main Site during the operational phase beyond those listed in the context of the Aggregates Terminal are not envisaged.

ExQ2	Question to:	Question:	Applicant's Response
2.3.	**Compulsory Acquisition, Temporary Possession and Other Land or Rights Considerations**		
2.3.1.	The Applicant	At ISH3 (the Compulsory Acquisition Hearing) Rail Central indicated that its only objection in relation to compulsory acquisition in respect of Plots 1/7 and 1/12 on the Main Site was to safeguard the ability for Rail Central to be developed alongside the Proposed Development. The Applicant has put forward in its revised dDCO (Doc 3.1C [REP4-004]) Requirement 30 to address Rail Central's concerns. Does the addition of this requirement adequately address Rail Central's concerns to allow it to withdraw its objection to compulsory acquisition? (See also the questions attached to the ExA's commentary on the revised dDCO regarding this Requirement).	The Applicant has amended Requirements 30 and 31 following receipt of some suggested amendments to those Requirements from Rail Central. The amendments made largely address the requested changes by Rail Central. A response is awaited from Rail Central on whether or not the latest version (contained in the dDCO submitted for **Deadline 5** (**Document 3.1D**)) are acceptable.
2.4.	**Draft Development Consent Order (DCO)**		
	The Agenda for ISH3 (EV-009) included a schedule of questions in relation to the draft DCO. The Applicant responded to those questions in writing prior to ISH3 and its response document has since then been incorporated by the		

ExQ2	Question to:	Question:	Applicant's Response
	Applicant at Appendix 13 to its post-hearing submissions on ISH3 (Doc 8.10 [REP4-011]). A number of those questions were addressed to persons other than the Applicant. To be quite clear, the answers from those other persons are required on or before Deadline 5 (26 February 2019). Without setting the questions out again in full, and so as to ensure that they have the same status as Second Written Questions, they are incorporated into these Second Written Questions by reference. The Examination timetable provides that matters raised orally in response to that schedule were to be submitted in writing by Deadline 4 (8 January 2019). Comments on any matters set out in those submissions are to be provided by Deadline 5 (26 February 2019) which is the same as the deadline for responses to these Second Written questions. IPs who participated in ISH3 and consider that their issues have already been drawn to the ExA's attention do not need to reiterate their issues. IPs are requested to review the Deadline 4 written submissions arising from ISH3. Matters set out in Deadline 4 written submissions arising from ISH3 are best responded to in Deadline 5 comments. Further questions on the dDCO are set out in the Commentary and Schedule of Questions document issued simultaneously with these Second Written Questions.		

ExQ2	Question to:	Question:	Applicant's Response
2.5.	**Historic Environment**		
2.5.1.	The Applicant	There is an unsigned draft SoCG with Historic England (Doc 7.14 [REP1-017]). Is a formally signed version of this SoCG to be provided and, if so, this should be by Deadline 6 (19 March 2019)?	The Applicant understands that Historic England feel that the letter, signed on their behalf, suffices, given that it has the draft SoCG attached to it and is referred to in the letter.
2.5.2.	The Applicant	In the Archaeology Trial Trenching Report (Roade Bypass) ES Chapter 10 Addendum (Doc 8.12 [REP4-013]) it is indicated that the pottery report will be amended subsequent to a visit to the Northampton County pottery type series, the work to be done in early January. Please can this amended report be provided by Deadline 5 (26 February 2019)?	Following further discussion with NCC's consultant the Applicant has been advised that no further amendments to the trial trenching report for the Roade bypass (including the pottery report) are required.
2.5.3.	NCC	Does the County Council agree with the conclusions of the Archaeology Trial Trenching Report (Roade Bypass) ES Chapter 10 Addendum (Doc 8.12 [REP4-013]) that construction impacts of the Roade bypass on the archaeological remains found in the additional trial trenching would be of 'minor adverse significance'? If not, please indicate its assessment of impact.	

ExQ2	Question to:	Question:	Applicant's Response
2.5.4.	The Applicant, NCC	Paragraph 10.7.3 of ES Chapter 10 (Cultural Heritage) (Doc 5.2 [APP-113]) notes that post-consent works would commence with a further stage of archaeological trial trench evaluation across the Main Site and bypass corridor. In light of the recent trial trenching that has been carried out within the bypass corridor, is it envisaged that, should the Proposed Development proceed, any additional trenching within the corridor would be required?	As with the main site the Roade Bypass corridor is covered by the provisions of Requirement 12 and further trenching may be undertaken pursuant to that requirement.
2.5.5.	NCC	At ISH2 the County Council suggested that there is an industry norm of 2/3% archaeological field investigation coverage of sites. This is within the context of trial trenching having been done on the Proposed Development's Main Site of 0.38%. Can the County Council direct the ExA to any document or source which backs up the assertion of a 2/3% norm?	
2.6.	**Landscape and Visual**		
2.6.1.	The Applicant	Having regards to landscape bunding at the Proposed Development's Main Site,	Please see separate document "Parameters Plan – Minor Amendments" (**Document 8.15**) submitted for **Deadline 5**.

ExQ2	Question to:	Question:	Applicant's Response
		the Parameters Plan (Doc 2.10 [APP-065]) indicates that there is a degree of flexibility in the height of the bunds which could vary depending on the final building heights. Rail Central has stated [REP4-020]; "The Landscape Cross Section Drawings [APP-084] show the approximate height of the bunds AOD but provide no explanation of the principles by which their height may vary relative to any change in height of the buildings they screen. Moreover, there is no explanation of phasing" Also, "Without a clear understanding of the parameters of the bunding, there cannot be an adequate assessment of landscape and visual effects (nor of the environmental consequences of the re-grading of the land)". Rail Central considers the above to be an example of the failure to properly describe and identify parameters of the development, leading to an unreliable assessment of significance. Can the Applicant please comment on these criticisms?	

ExQ2	Question to:	Question:	Applicant's Response
2.7.	**Noise and Vibration**		
2.7.1.	The Applicant	Rail Central has criticised the assessment of operational noise from the Proposed Development's Main Site [REP4-020]. It is suggested that consideration of noise from plant and machinery via proposed Requirement 23 would defer the assessment of potentially significant noise sources which might lead to significant adverse effect at receptors and is inappropriate in light of R v Cornwall County Council ex parte Hardy (2001). Further, it notes that other potentially significant noise sources, such as HGV trailer-mounted chillers, have been excluded from assessment and that failures in the proper approach to assessment lead to an inappropriate and inaccurate comparison with Rail Central, which has included these in its assessment. Whilst acknowledging that the Applicant has made a response to points raised by Rail Central at the Environmental ISH (Doc 8.10 [REP4-011]) is there anything further the Applicant wishes to add in relation to the above criticisms?	Please see the Applicant's submissions on R v Hardy in item 4 of the Applicant's response to the ExA's Commentary on the DCO (**Document 8.19**) submitted for **Deadline 5**. Requirement 23 (1) of the dDCO requires assessments to be made of "*all mechanical and ventilation plant and any other noise making machinery or mobile plant (including for the avoidance of doubt HGV chiller units) that is intended to be used on any of the warehouses or other buildings within the main site"* prior to installation. This undertaking means that when the detailed design and proposed operation of the warehouses and other buildings is known, a detailed noise assessment is made and any significant adverse effects mitigated at that detailed design stage. Thus, this requirement provides a safeguard within the DCO to avoid any significant adverse effects occurring after consent has been granted. The reference to "mobile plant" in the requirement covers the point regarding HGV trailer-mounted chillers, however, wording has been added in the version of the dDCO submitted for **Deadline 5** (**Document 3.1D**) to put this beyond doubt.

ExQ2	Question to:	Question:	Applicant's Response
2.7.2.	The Applicant	Requirement 23 within the dDCO has been amended and a question has been addressed to SNC in the questions and commentary on the DCO in respect of operational railway noise, which the ExA would expect SNC to address in that context. In addition, however, SNC in its written submissions following ISH2 and ISH3 [REP4-015] has continuing concerns relating to the assessment of operational noise from the Main Site. It considers these have not been adequately addressed in the Applicant's earlier responses, for example in 'Responses to the ExA's written questions, written representations and documents submitted as part of deadline 1' (Doc 8.7, REP2-010]). In particular, SNC considers there is insufficient reasoning to support the approach adopted in the BS4142:2014 assessment to address the complexity of the noise sources that would be involved with the development. Can the Applicant please comment on these continuing concerns and the view that the margins of uncertainty	Discussions were well advanced with SNC by **Deadline 4**, however, in the absence of the complete agreement now reached, SNC submitted representations in relation to noise which effectively ignored those discussions. Complete agreement has now been reached (please see Statement of Common Ground with SNC, paragraphs 7.1 – 7.4 (**Document 7.11** [AS-058]) submitted to the ExA on 11 February 2019). There is inevitably a level of uncertainty at this stage because the precise occupier, and therefore, design details of each warehouse and building are not known. However, Requirement 23(1) addresses this point and provides the necessary safeguard as discussed in the response to 2.7.1. Furthermore, agreement has been reached with SNC so that the assessment methodology used when discharging Requirement 23 (1) would be "*first approved by the relevant planning authority in writing".* That would mean that the local authority is able to approve, where appropriate, the precise implementation of standards such as BS 4142:2014 in the assessment methodology used.

ExQ2	Question to:	Question:	Applicant's Response
		associated with the assessment approach could potentially mean that the significance of the predicted impacts may be greater and some of which may possibly be significantly adverse or unacceptable as defined in the Government's Planning Practice Guidance?	
2.7.3.	The Applicant	In relation to noise from the Roade Bypass, and with reference to the World Health Organisation Night Noise Guidelines for Europe, SNC [REP4-015] queries whether it is possible for an offer of protection to be extended to affected properties in the form of the provision of suitable glazing and alternative means of ventilation. Can the Applicant please comment on the necessity of this and how this would be secured, for example would this be through the relevant Noise Insulation Regulations?	The Noise Insulation Regulations for highways define eligibility in terms of the impact which occurs over the 18 hour period between 0600 and midnight. The underlying presumption is that properties attracting eligibility would be protected against both daytime and night-time noise as the insulation package applies to all habitable rooms. For eligibility to occur, a threshold value has to be exceeded and there has to be a 1 dB increase resulting from the scheme. The threshold for daytime significant adverse effects with regard to road traffic noise impacts (Table 8.8 of the ES) broadly corresponds to the threshold for eligibility for compensation under the Noise Insulation Regulations. The night time threshold for significant adverse effects (Table 8.8) reflects guidance shown in the Night Noise Guidelines for Europe. The results shown in Appendix 8.15 of the ES shows that there are no properties significantly adversely affected by noise from the bypass and consequently there are no properties eligible for

ExQ2	Question to:	Question:	Applicant's Response
			compensation under the Noise Insulation Regulations. Therefore no further mitigation is required.
2.7.4.	The Applicant	SNC notes [REP4-015] that no consideration appears to have been given to any mitigation for receptor R29 in respect of predicted changes to road traffic noise levels around the Main Site. It also asks whether further efforts could be made to reduce the significance of temporary adverse effects at receptors R26 and R31 to R33. Could the Applicant please comment?	The tables in Appendix 8.14 of the ES shows that the impact at location R29 with respect to road traffic noise levels around the main site are negligible during the daytime and minor adverse at night. None of these impacts is significant and no further mitigation is required. It is believed that reference to R26 in the question should be to R27. As noted in the Applicant's response to ExQ1.8.19 (**Document 8.2** [REP1-020 and REP1-021]), the maximum likely duration of the temporary significant adverse effect is two years. Given that the impact at this location will ultimately decrease, no further mitigation is proposed. The results shown in Appendix 8.14 of the ES show that there are no significant adverse effects expected for receptors R31-R33.
2.7.5.	The Applicant, Highways England (HE), NCC	In answer to ExQ1.8.11 (Doc 8.2 [REP1-020]) in respect of road traffic-induced ground vibration, the Applicant noted that "When all of the road construction and highway mitigation works have been completed, the associated road surfaces will be newer and smoother than existing, which will represent an improved position, over and above that existing for current traffic, traffic growth and the	So-called low noise road surfaces have been available for use for many years. It is understood that the article in The Times reflects an undertaking by Highways England to use low noise road surfaces more routinely than before. The benefits of low noise road surfacing increases as the average road vehicle speed increases. In the article in the Times, Highways England are indicating that using such surfaces would be expected to reduce noise by 3 dB compared with conventional road surfaces.

ExQ2	Question to:	Question:	Applicant's Response
		development traffic" and it is not expected that any significant increase in road traffic-induced ground-borne vibration will occur. The ExA understands Highways England's intention nationally to employ a new road surfacing technique that will reduce noise, particularly in built-up areas (reported in The Times, 29 January 2019): i) is such a technique likely to be employed in respect of road works resulting from the Proposed Development (including those not within the ambit of Highways England) and, if so, please comment on the potential impact on the noise climate?; and ii) if such surfacing is to be used, what implications might this have for road traffic-induced ground-borne vibration?	i) The Applicant can confirm that low noise surfacing will be used for the highway works where appropriate and if part of the specification (which must be agreed with the highway authorities under Parts 2 and 3 of Schedule 13 of the DCO) . This is common practice for major road schemes and has been for several years. The Applicant has no reason to disagree with the Highways England experience that such surfaces would reduce noise by 3 dB compared with conventional road surfaces. ii) There would be no difference in the effect on ground borne vibration between previously conventional noise surfacing and low noise surfacing.

ExQ2	Question to:	Question:	Applicant's Response
2.8.	**Socio-economic Effects**		
2.8.1.	The Applicant	Paragraph references are to those in ES Chapter 3 (Socio-Economic) (Doc 5.2 [APP-082]) unless stated otherwise. ES Chapter 12 (Transport) – Appendix 12.1, TA Appendix 1 Framework Travel Plan, Table 3 (Doc 5.2 [APP-232]). It is stated that the high level aims of the Travel Plan are to ensure that Northampton Gateway is well served by sustainable travel (including walking, cycling, public transport and car sharing) from the first stage of development; and that staff have a reasonable alternative to the private car for their journey to work. It is noted that with a 20% reduction in single occupancy car journeys in place, 74% of journeys to the site would still be made by single occupancy vehicles in 2031, with 10% of journeys being made by bus. Please can the Applicant confirm how these predicted figures compare with modes of travel to established SRFI's?	The location and scale of the proposed development means that the use of a local comparator site is more relevant, compared to established SRFI's, for the development of mode share targets. It allows for local demographics, local infrastructure and transport networks, and the sites proximity to an urban conurbation to be properly considered. Swan Valley in Northamptonshire has been used as a comparator site for the purpose of developing mode share targets because: • The site is located on the A43 adjacent to M1 Junction 15a and is therefore similar to the proposed Northampton Gateway SRFI site in terms of location • It includes several large scale warehouses, comprising nearly 1.5 million sqft GFA. It is the largest site locally for which survey data is available, and has a similar percentage of ancillary office space to that proposed at NGSRFI • It has an employee density of 1 employee per 77sqm, which matches the 2010 Prologis survey of typical B8 users, as supported by the HCA data for regional distribution centres • The majority of units at the site operate a three-shift system (6 – 2 – 10). Census 2011 data for 'method of travel to work' to Swan Valley has been analysed to understand the model split for the site. This

<table>
<tr><th>ExQ2</th><th>Question to:</th><th>Question:</th><th>Applicant's Response</th></tr>
<tr><td></td><td></td><td></td><td>analysis (para 3.4-3.5 in the FTP) shows that 74% of people travel by Single Occupancy Vehicle, 10% by car share, 7% by bus or coach, 4% by foot, 2% by cycle (and 1% by train, 1% by motorbike and 1% by taxi).

The Modal shift targets for Northampton SRFI have been developed based on these. As the development site is slightly further from the Town Centre, the mode share targets recognise that there is likely to be less walking and cycling than is occurring at Swan Valley, and that travel by bus and car-share will be more prominent.

<table>
<tr><th></th><th>Swan Valley 2011 (MSOA)</th><th>NGSRFI Target Modal Split</th></tr>
<tr><td>Single Occupancy Vehicle</td><td>74%</td><td>74%</td></tr>
<tr><td>Car passenger</td><td>10%</td><td>12%</td></tr>
<tr><td>Bus</td><td>7%</td><td>10%</td></tr>
<tr><td>Walking</td><td>4%</td><td rowspan="2">4%</td></tr>
<tr><td>Cycling</td><td>2%</td></tr>
</table>

The targets for the FTP and PTS have been agreed with NCC.</td></tr>
</table>

ExQ2	Question to:	Question:	Applicant's Response
			As referred to in other responses above, it is important to recognise that the FTP and PTS do not represent 'mitigation' – they are adopted as Requirements or commitments for the scheme, and will deliver benefits through best practice measures, but this is not driven by a need to deliver mitigation for adverse effects.
2.8.2.	The Applicant	Response by Northampton Rail Users Group (NRUG) to Deadline 1 – Para 3, Page 12 of response [REP1-092]. NRUG considers that cycling is not limited to recognised cycle paths and that the roads in the locality are widely used by recreational cyclists. However, the effects on this usage have not been identified, particularly the risk to road safety. Can the Applicant please comment on this and as to whether such usage has formed part of the assessment?	Use of the road network by cyclists, and the impacts of the Proposed Development and highway mitigation measures on cyclists, have been considered as part of the assessment process, as documented in the Walking, Cycling & Horse Riding Assessment Report (WCHAR1) and the Walking, Cycling & Horse Riding Review Report (WCHAR2), see Transport Assessment (TA) para 4.69, and TA Appendices 18 and 19. That process included two separate consultation sessions on 4 September 2017 and 19 October 2017 with representatives from NCC's walking and cycling, and road safety teams, during which the highway mitigation works were presented in detail and potential implications for non-motorised users, including cyclists, were discussed. NCC provided their comments regarding provisions for cyclists as part of their response to the Stage 2 consultation. NCC's comments, along with comments from South Northamptonshire Council and the Ramblers (see paras 3.31 to 3.40 of WCHAR1 (TA Appendix 18)), were taken forward and, where relevant, were incorporated into the 22 opportunities identified at Section 4 of in the WCHAR1 to enhance provisions for non-motorised users, this included provision for cyclists. As documented in WCHAR2 (TA Appendix 19) amendments were made to the scheme during its

ExQ2	Question to:	Question:	Applicant's Response
			development to achieve compliance with the WCHAR1 opportunities. The final highway mitigation proposals were subject to a Stage 1 Road Safety Audit (RSA1) and Response Report (RSARR1), see TA para 4.94 and 4.95. The WCHAR1, WHCAR2, RSA1 and RSARR are approved by NCC and Highways England (see respective Statements of Common Ground, **Document 7.5** [AS-006] and **Documents 7.1** [APP-382] and **Addendums 7.5A** [REP1-009] and **7.1A** [REP1-005]). Overall, the effect of the proposed highway mitigation measures is to reduce traffic flows on many of the local roads that are used for recreational cycling. On the busy principal road network, the A508 and A45, the Proposed Development will provide new off-road routes (see TA paras 4.48 to 4.67) that will allow cyclists to be segregated from traffic.
2.8.3.	The Applicant	Stop Roxhill Northampton Gateway Action Group (SRNG) Comments on Applicant's responses to Other Parties' Deadline 2 submissions and post-hearing submission on Environmental Matters ISH2 (Doc 8.9 [REP4-023]). At paragraph 7 SRNG considers that the warehouse operative jobs on offer as result of the Proposed Development would not be attractive to local job-	The Applicant responds to the two SRNG points as follows: *1) 'this type of job [warehouse operative] is not attractive to local job-seekers';* The proposal would create a wide range of positions and employment types. Chapter 3 of the Applicant's ES groups these into six categories of job type (Table 3.9) and is based on research by Prologis of operational distribution units. The research indicates that those in warehouse occupations represent some 50% of the overall staff requirement. There are also drivers, office-based roles,

ExQ2	Question to:	Question:	Applicant's Response
		seekers. Furthermore, the situation could potentially worsen if EU nationals currently in employment in the logistics sector are forced to return to home countries. Please can the Applicant provide comment?	managerial staff and others working in IT, customer services, sales and engineering functions. Chapter 3 of the ES refers to Census information and identifies the overall number of people working in elementary occupations, such as warehouse operatives (3.4.21-22). This indicates that in the Study Area there is a significantly higher proportion of people employed in this type of employment when compared with the wider population: 4% in the study area compared to 1.5% in England as a whole. Furthermore, the number of jobs in the transport and storage industry in the East Midlands area has increased by c.28% overall since the 2011 Census. It is the Applicant's view that this demonstrates that the study area has an appropriate labour supply and there is no evidence to indicate that jobs at the SRFI will not be attractive to local job seekers. Furthermore, flows of claimants seeking and leaving Job Seekers Allowance (JSA) have both decreased overall over the 10 years to December 2018. More specifically, the length of time a person seeking a position in the 'elementary work' category claims JSA is predominantly less than 13-weeks, with very few in this situation claiming JSA for a period of more than 1 year. This indicates that whilst there are employment vacancies at a point in time, it's not that the jobs are unattractive, rather, the work opportunities have expanded, and there will always be a turnover of employees. The labour market is dynamic and influenced by many factors that constantly alter employment requirements and demand.

ExQ2	Question to:	Question:	Applicant's Response
			There will be a progressive increase in the number of employees supported in the new premises as they are completed and become fully operational over time. As noted, the labour resource in the area is characterised by a high proportion of warehouse operatives and the overall workforce is set to increase further. Some of the new positions would be taken by people changing jobs and this is recognised in the assessment of availability in the ES (identified as displacement effects which are factored into the assessment, paragraph 3.6.11), people that are new to the area (new housing delivery), others that will be new to the job market because they have reached working age, and some that will undergo re-training. *2) 'With Brexit looming, this situation could worsen if EU nationals currently employed in the industry return home'.* The Government has stated "*The UK government has reached an agreement with the EU that will protect the rights of EU citizens and their family members living in the UK. It has also reached an agreement with Norway, Iceland and Liechtenstein, and a separate agreement with Switzerland. These agreements mean that most citizens from the EU, Norway, Iceland, Liechtenstein and Switzerland will need to apply to stay in the UK. They can then continue living their lives here as they do now*" (see https://www.gov.uk/staying-uk-eu-citizen). The latest information release concerning migration statistics from the Office for National Statistics (November 2018) indicates that net migration continues to add to the population of the UK. The relationship between net migration of EU citizens and non-EU

ExQ2	Question to:	Question:	Applicant's Response
			citizens has changed, with a fall in the net migration of EU citizens after the EU referendum in 2016, followed by an upturn in the net migration of non-EU citizens.
2.8.4.	Local Enterprise Partnership	In its Rule 6 letter issued on 10 September 2018 [PD-005], the ExA requested an SoCG between the Applicant and the Local Enterprise Partnership (LEP) on the subject of employment relating to the Proposed Development. In its 'Statement of Common Ground Update and Statement of Commonality' (Doc 8.4 [REP4-009]) the Applicant notes that the LEP has declined to engage in the exercise of producing a SoCG, the LEP indicating that "they are unhappy with the principle of signing any such statement". Could the LEP explain its position and indicate whether it considers it would still be possible to agree a SoCG that would assist the ExA in its consideration of the employment implications of the Proposed Development?	Immediately following receipt of the ExQ2, the Applicant contacted the LEP and made them aware of the ExA's request including providing a link to the relevant documentation on the Inspectorate's website. An officer of the LEP confirmed receipt of the email but at the time of writing, no substantive response has been received by the Applicant.
2.8.5.	The Applicant	In the Applicant's response to ExQ1.10.6 (i) (Doc 8.2 [REP1-020]) the net economic effect of the completed	The £345 million net effect stated in ExQ1.10.15 is calculated using the GVA figure per job released by the ONS in 2018, whereas the

ExQ2	Question to:	Question:	Applicant's Response
		Proposed Development is stated as £338 million per annum. However, the response given to ExQ 1.10.15 states £345 million per annum. Please can the Applicant explain the difference?	£338 million GVA was calculated using the 2017 ONS data available at the time of preparing the assessment. An average annual change of +1.7% economic growth is forecast for the East Midlands area over the period 2018-2028 (Source - *Regional and country economic indicators*. Oxford Economics for House of Commons Library Briefing Paper number 06924, 25 January 2019).
2.9.	**Transportation and Traffic**		
2.9.1.	Network Rail (NR)	The agreed but unsigned tripartite SoCG (Doc 7.18 [REP3-007]) between the Applicant, Rail Central and NR notes at section 4: "Once the relevant contracts are in place and Network Rail has had an opportunity to consider the joint scheme currently only proposed by Rail Central, Network Rail will be able to give its opinion on the assessments that it will require to give its view on: (i) the compatibility of the two Projects in respect of design and construction, in particular the design of the southern connections; (ii) the capacity of the Rail Network to accommodate both Projects; and	A copy of the previously agreed and now signed SoCG is submitted to the ExA at **Deadline 5** (**Document 7.18A**).

ExQ2	Question to:	Question:	Applicant's Response
		(iii) the operational compatibility of the two Projects". Is NR now in a position to provide its views on the above and, if not, when might the ExA expect these?	
2.9.2.	The Applicant, NR, Rail Central	Within the unsigned SoCG with NR (Doc 7.13 [REP1-016]) it is stated at paragraph 22 that, until further work is done to evaluate the speed of connection into and out of the Proposed Development and this is verified, NR cannot confirm that connection speeds are viable (and the results of which will have a bearing on the assessment of network capacity to accommodate the Proposed Development). Paragraph 2.14 of Doc 8.10 (Applicant's post-hearing submissions ((ISH2 and ISH3 and CAH) [REP4-011]) notes that discussions are continuing with regards to connection speeds from the north (those from the south being considered satisfactory).	A further SoCG in relation to the 40mph connection speed issue has been agreed with Network Rail. Confirmation of this agreement is contained in an email from Network Rail's lawyers to the Applicant's lawyers dated 6th February 2019 which states "*I can confirm that Network Rail agrees to the new statement of common ground you circulated on 31 January regarding the connection speed assessments*". The signed SoCG has not yet been received from Network Rail but the SoCG circulated on 31 January is attached at **Appendix 4** to this Document. With regard to capacity on the network generally, please see paragraphs 2.16 – 2.25 (in particular paragraph 2.25) of the Applicant's Post Hearing Submissions in respect of ISH2 (19 December 2018) (**Document 8.10** [REP1-020 and REP1-021]) and also response to ExQ2.9.3 below.

ExQ2	Question to:	Question:	Applicant's Response
		Please provide an update and appropriate documentation as to the position regarding further study as to: (i) the feasibility of connection to the rail network of the Proposed Development as a) a stand-alone development and b) as a development in combination with the Rail Central proposal; (ii) assessment of network capacity in relation to both stand-alone and in-combination developments; and (iii) whether the further assessment has included review and consideration of the Network Rail West Coast Main Line Capacity Plus, the Northamptonshire Rail Capacity Study and the Network Rail Northampton Loop Capacity Report, which have been referred to in representations.	
2.9.3.	The Applicant, NR	The unsigned SoCG with NR (Doc 7.13 [REP-016]) notes that having regards to network capacity, subject to being satisfied in relation to connection speeds and noting that train paths cannot be	Please note that the SoCG with Network Rail (**Document 7.13** [REP1-016]) was submitted as a signed document for **Deadline 1**.

ExQ2	Question to:	Question:	Applicant's Response
		matched to paths at the origin/ destination until the Proposed Development is operational, based on the assumptions made in the NR Northampton Loop Capacity Report September 2017 and the GB Railfreight report, NR believes that there is the capability and capacity to support efficient terminal operations of four paths per day. (i) If this assumption is accepted, what degree of confidence is there that there would be sufficient capacity on the network to accommodate additional train paths to serve the Proposed Development? This is bearing in mind that it is acknowledged that the degree of additional capacity that could result from the opening of the two phases of HS2 is uncertain, and there are inherent complexities of the freight pathing process (Doc 7.13 [REP1-016, para 33 and Appendix 1]). (ii) The Applicant notes (Doc 8.10[REP4-011, para 2.17]) that NR has not at any point raised any issues with regard to the content of the Rail	(i) After having analysed the timetable detail, the Applicant's *Capacity Report for Northampton Gateway Strategic Rail Freight Interchange* (dated May 2018) contained in the Rail Reports (**Document 6.7** [APP-377]) was clear that, without taking into account any additional released capacity from any part of the HS2 project, there are at least 22 paths available for new traffic between 06:00 and 00:00, with many more available between the 00:01 and 06:00. Therefore, in the Applicant's view, there is a very high level of confidence of sufficient capacity being available to serve the proposed development.

ExQ2	Question to:	Question:	Applicant's Response
		Reports (submitted with the application [APP-377]). Can NR comment on whether it agrees with the conclusions of the Rail Reports in terms of assumptions made and conclusions reached regarding capacity for railfreight?	
2.9.4.	The Applicant, NR	At ISH 2 the Applicant explained that GRIP2 was the appropriate stage to have been reached in the assessment of the Proposed Development as far as rail connection was concerned (Doc 8.10 [REP4-011, para 2.20]). However, attention has been drawn [REP4 -016 and link provided in Mr Bodman's post-hearing submission REP4-022, and REP4-023] to earlier PINS' advice, issued in February 2017, which is considered to be relevant. This is that if a developer has not reached a conclusion with Network Rail to GRIP4 this could represent a greater risk approach as it could complicate the ExA's ability to assess the potential impacts of the scheme. Blisworth Parish Council [REP4-017] also considers that in a situation where there are two developments attempting to access the	Mr Bodman refers to an enquiry made by Mr Alan Hargreaves of 'Stop Rail Central' dated 21 February 2017. This enquiry raised the level of GRIP development necessary at this stage. In concluding that not reaching GRIP level 4 "*suggests that there is a much higher level of risk in assessing the potential impacts of the scheme*", Mr Bodman is not accurately reflecting the Planning Inspectorate's advice to which he refers. The advice actually says: *"If a developer had not reached a conclusion with Network Rail on a single option development (GRIP stage 4) this <u>could</u> present a greater high risk approach, as it <u>could</u> complicate the ExA's ability to assess the potential impacts of the scheme".* (Applicant's underlining). That sentence however, also needs to be considered in the context of the preceding paragraph which states: *The GRIP process is an internal process used by Network Rail which sets out scheme definition, feasibility, option selection, detailed design and construction in stages. The process is entirely separate to the formal planning stages used by the Planning*

ExQ2	Question to:	Question:	Applicant's Response
		same section of railway, with possibly significant technical issues, a higher degree of certainty as to feasibility should be a necessity. Could the Applicant and NR please comment on the necessity/desirability of assessment to a later GRIP stage and the implications for the ExA's assessment of the Proposed Development?	*Inspectorate (PINS) for nationally significant infrastructure projects (NSIPs), and therefore there are no rules that define what stage in the GRIP process a developer needs to have achieved before submitting an application."* Please also see paragraphs 2.20 and 2.21 of the Applicant's Post Hearing Submissions in respect of ISH2 on 19 December 2018 (**Document 8.10** [REP4-011) and agreement with Network Rail in paragraphs 22 and 23 of the SoCG (**Document 7.13** [REP1-016]). The information available at GRIP Stage 2, and the information provided entirely separately as a result of the NSIP application process, ensures that the necessary assessment of the potential impacts of the scheme can be undertaken. The information is at least as equivalent to the extent of information ordinarily available at the determination stage of large schemes. In relation to the sole remaining outstanding information identified by Network Rail referring to the origin and destination of each train movement (see caveat referred to in paragraph 24(b) the SoCG with Network Rail (**Document 7.13** [REP1-016])) – this is not information which would be available at GRIP 4 and will only be available when the SRFI is operational and occupiers are known.
2.9.5.	The Applicant, NR	Can NR please expand and justify its statement that any freight services which are added to the network will not be at the expense of passenger services and that NR accordingly confirms that the Proposed Development will not affect	The Applicant's *Capacity Report for Northampton Gateway Strategic Rail Freight Interchange* (dated May 2018) contained in the Rail Reports (**Document 6.7** [APP-377]) was clear that, without taking into account any additional released capacity from any part of the HS2 project, there are at least 22 paths available for new

ExQ2	Question to:	Question:	Applicant's Response
		passenger services [REP1-050, response to ExA question 1.11.15]? It is not clear whether this assessment is based solely on the ability of the Proposed Development to handle a minimum of four trains per day (as set out in paragraph 4.89 of the NNNPS). If that is the case, how might usage above this level potentially constrain passenger services and the growth thereof? Whilst noting its response at ISH2, and summarised at para 2.17 of its post-hearing response (Doc 8.10 [REP4-011]), can the Applicant please clarify the basis for the assertion that there would be no detrimental impact on passenger services? For example, is this based on the above minimum of four trains per day, the full aspirational 16 train paths per day, or something between the two? Does it include likely increased passenger services from the East West rail connection and increases in services to Northampton, an aspiration that is supported in policy, and potential increases in freight traffic from the existing DIRFT?	traffic between 06:00 and 00:00, with many more available between the 00:01 and 06:00. Even with a full 16 paths per day to/from Northampton Gateway, spread over a 24 hour period, the Applicant believes there would still be space in the current timetable for additional passenger and freight services to serve, or run through, Northampton and that includes the existing Daventry terminals. It must be emphasised that there is a good deal of capacity on the network between the hours of 00:01 and 06:00 and clearly few additional passenger services would be viable during these times. The way in which paths are determined in the future for all rail users, both existing and future, is set out in Appendix 1 to the SoCG with Network Rail (**Document 7.13** [REP1-016]) which underlines that any current pathing position represents a snap shot in time. The answer to ExQ1.11.15 explains that Network Rail's objective is to share capacity on the Network for the safe carriage of passengers and goods in the overall interest of current and prospective users and providers of railway services. It goes on to explain the process that is undertaken where there is a conflict between potential services. Other answers address related matters including how freight paths are allocated alongside passenger paths, how the timetable is reviewed to accommodate new services and the lack of situations where freight services have not been capable of being accommodated.

ExQ2	Question to:	Question:	Applicant's Response
			The Applicant would also refer the ExA to Network Rail's response to ExQ1.11.15 where it confirms that "*any freight services which are added to the network will not be at the expense of passenger services and, accordingly, Network Rail confirms that the Proposed Development will not affect passengers".* The Department for Transport's policy document *Rail Freight Strategy – Moving Britain Ahead (September 2016)* makes clear that moving more freight by rail has the potential to make a real contribution to meeting the UK's stretching and legally-binding Fifth Carbon Budget which requires a 57% reduction in emissions in 2032 compared to 1990 levels. The DfT recognises the importance of the rail freight growth in the UK and will bear this carefully in mind when re-specifying passenger franchises.
2.9.6.	The Applicant	Can the Applicant please respond to the assertion by Mr Andrew Bodman [REP4-021] that: i) the proposed development is planned to operate primarily as a national distribution centre for road-based logistics; and ii) that paragraphs 2.44, 2.45, 2.56 and 2.58 of the NPSNN have been ignored?	i. Please see the Applicant's response to ExQ2.9.13 below. ii. These paragraphs, and indeed the NPSNN as a whole, have been considered and appropriately addressed through the application submission. Paragraphs 4.27 – 4.35 of the Planning Statement (**Document 6.6** APP-376]) assess the locational requirements for SRFIs. Paragraph

ExQ2	Question to:	Question:	Applicant's Response
			4.31 refers to the Market Analysis Report which describes the ways in which SRFIs function within the logistics supply chain, notably the relationship with National and Regional Distribution Centres and explains why Northampton is an important location in key logistics supply chain routes. Within this context the Market Analysis Report identifies the business markets the Northampton Gateway site is intended to serve. It explains that in the logistics sector the ability to serve a large population in a number of major urban centres is an important factor in the attractiveness of a location and for these reasons the Midlands has and will continue to be a focus for logistics activity. (See also response to ExQ2.0.4). The Planning Statement goes on to explain, at paragraph 4.35 – 4.37, why Northampton Gateway is important to help to expand the network of SRFIs and to meet Markets not currently served by existing SRFIs. At paragraph 4.38 it explains how the planned and future anticipated growth in the area is also relevant to the consideration of the markets to be served by the proposed SRFI. It explains that Northampton is experiencing significant growth and that it forms part of the Cambridge – Milton Keynes – Oxford growth corridor identified by Government as an important area, nationally, for growth and prosperity, including 1 million new homes.

ExQ2	Question to:	Question:	Applicant's Response
			The Planning Statement includes at Appendix 1, a Statement setting out how Northampton Gateway complies with the Policy requirements of the NPSNN.
2.9.7.	The Applicant, NR	Reference has been made to the emerging West Coast Capacity Plus Study (NCC Local Impact Report, para 3.14 [REP1-036]) and Andrew Bodman [REP4-021]) which it is stated identifies a significant future constraint in capacity not only on the West Coast Main Line to the south of the Proposed Development but also over the entirety of the Northampton Loop. As such, increasing freight services over the Loop might require a reduction in the passenger service to Northampton. Please explain the current position with regards this study and its status, and comment on the above identified constraint.	The Applicant's understanding of the position is that the West Coast Capacity Plus Study was a study relating to capacity on the West Coast Main Line upon which some initial work was done by Network Rail in 2015/16. At one point Network Rail advised that the study would be published by the end of 2016. However, no study has ever been published and it is understood by the Applicant that it has now been overtaken by events and a study in the form previously anticipated is not currently being progressed. The Applicant would, however, defer to Network Rail on this. No reference has been made to any such emerging study by Network Rail in the Applicant's discussions with Network Rail, or to any constraint in capacity identified therein, such as that referred to in the ExA's question. The Applicant has seen no evidence at all that increasing freight services over the Northampton Loop "*might require a reduction in the passenger to Northampton*". Indeed the Rail Reports submitted with the Application (**Document 6.7** [APP-377]) clearly show that this is not the case.
2.9.8.	The Applicant	The GB Railfreight 'Capacity Report for Northampton Gateway Strategic Rail Freight Interchange' May 2018 [APP-377] notes at para 6.2 that intermodal traffic out of the port of Southampton is the traffic that is being targeted by the	The Applicant refutes the positon put forward by Mr Bodman. The Applicant's views on the rail freight market and the opportunities for the growth of the market are set out in the Market Analysis Report sections 5-8 (**Document 6.8A** [REP1-004]). The report explains that in recent history rail has played a relatively limited role in distribution, with operators focussing on road based movement.

ExQ2	Question to:	Question:	Applicant's Response
		Proposed Development. In light of this please comment on the suggestion made (Andrew Bodman [REP4-021]) that the distances between the three largest UK container ports (Southampton, Felixstowe and London Gateway) and the Proposed Development are too short for freight to be moved by rail economically.	This has in part been due to the limited number of and therefore access to, rail terminals. The Report outlines the changes that are taking place which are driving the growth of rail freight (see in particular paragraphs 7.1-7.6). At paragraph 7.8 the report quotes a Department for Transport Report which sets out reasons why the competitive distances for rail are reducing significantly and highlights the 'virtuous circle of growth' that can be achieved with more terminals and therefore economies of scale. Because of the prime location of Northampton Gateway in relation to the logistics market and its accessibility via the strategic freight network to key intermodal ports, the Applicant is confident that the market for rail freight services at Northampton Gateway will be very strong. The Applicant would refer the ExA to its response to ExQ1.11.13 and in turn the letter from Maritime Transport attached at Appendix 6 (**Document 8.2** [REP1-020 and REP1-021]). The letter from Maritime sets out details of the Maritime business, the operation of their terminal at BiFT and explains their reasons for investing in East Midlands Gateway. In the letter, Maritime also express a very keen interest in operating the Northampton Gateway terminal. The mileage between the Port of Southampton and Northampton Gateway (via Oxford & Winslow) is 121 miles; from Port of Felixstowe to Northampton Gateway 148 miles and from London Gateway Port 94 miles. There are existing services which operate at these types of distances, for example there is a Port of Tilbury to DIRFT train which is a distance of about 105 miles.

ExQ2	Question to:	Question:	Applicant's Response
2.9.9.	NR	The Victa Railfreight report 'West Coast Main Line south of Rugby: capacity for additional freight' May 2018 (Doc 6.7 [APP-377]) notes some unresolved capacity issues at Northampton Station but that NR intends to address these to ensure that capacity is increased to match expected demand for train paths. It also notes that as the Proposed Development lies south of Northampton Station it would not be affected by these constraints to a significant extent. Can NR please comment on this, providing details of what is intended to address these constraints, the timescales involved and how these would be resourced?	
2.9.10.	The Applicant	Forecast modal shift from road to rail, based on the projected maximum operations of 16 trains per day, indicates that over 75% of tonnage forecast to be transported to the Proposed Development would come from Felixstowe and London Gateway (Transport Appendix 34 Doc 5.2 [APP-269]). Mr Andrew Bodman states [REP4-022] that trains would have to use	Traffic from both London Gateway and Felixstowe ports would either run via Stratford, the North London Line, Camden Junction and the West Coast Main Line, or via South Tottenham, Gospel Oak and to Harlesden thence the West Coast Main Line. Although busy mixed-traffic railways, the Applicant refutes the claim that these are some of Network Rail's worst bottlenecks in the UK. Each of these route combinations have mixed-traffic timetable structures that support four freight services per hour (apart from the peak commuting hours), in each direction, and there are available

ExQ2	Question to:	Question:	Applicant's Response
		the North London and East London lines, which contain some of Network Rail's worst bottlenecks. Can the Applicant please confirm that its capacity studies have included consideration of these lines (as was stated at ISH2) and, if so, do the conclusions reached take account of the suggested constraints on these lines?	gaps for new services to be entered into the timetable between 06:00 and 00:00. From 00:01 through to 06:00, there is even more space available in the timetable, over all the above routes, for new services. In addition to the above, and in a similar manner to that stated for the West Coast Main Line through the Northampton area, there are also Strategic Capacity paths (see paragraph 2.19 of the Applicant's Post Hearing Submissions in respect of ISH2 on 19 December 2018 (**Document 8.10** [REP4-0011]) already built into the timetable, running from Wembley Yard through to London Gateway and back. Neither of these flows would use the East London Line, as mentioned, and neither is that line relevant to the stated flows.
2.9.11.	The Applicant	Can the Applicant please comment on the assertion made by Stop Roxhill Northampton Gateway Action Group [REP4-023] that the trains that would be used for the movement of aggregates should not be included in the capability of handling a minimum four trains per day as required by the NPSNN as they do not provide any new intermodal activity?	Section 26 of the Planning Act 2008 includes as one of the criteria for an SRFI NSIP a requirement that the rail freight interchange must be capable of handling "at least 4 goods trains per day" (Section 26 (4)(b)). The NPSNN, paragraph 4.89, requires that SRFI's should, as a minimum, be capable of handling four trains per day and where possible be capable of increasing the number of trains handled. In neither the Planning Act nor the NPSNN is there a requirement for trains for specific types of goods. The Northampton Gateway SRFI meets the criteria in both the Act and the NPSNN. Requirement 3 (3) has been drafted in accordance with the NPSNN and the Act to require the construction of a rail terminal capable of handling at least four goods trains per day, prior to the occupation of any of the warehousing.

ExQ2	Question to:	Question:	Applicant's Response
			In reality the arrangement shown at 'a) Terminal' on the Illustrative Rail Terminal Plan (**Document 2.8** [APP-060]) would be capable of handling more than 4 trains a day, as there would be 2 operational terminal lines and 1 dedicated reception line. If, therefore, the ExA considered it important and necessary that the terminal be required to handle a minimum of 4 intermodal trains per day in addition to any aggregates trains, the Applicant would be content for Requirement 3(3) to be amended accordingly. This could be done by replacing the words 'four goods trains' with the words 'four intermodal trains'.
2.9.12.	The Applicant	Can the Applicant please comment on the assertion by Mr Andrew Bodman [Rep4-021] that whilst NSTM2 traffic modelling includes Milton Keynes it takes no account of the planned growth of housing and businesses in that area?	Mr Bodman asserts that no account of planned growth beyond Northamptonshire is made within the future year NSTM2 forecasts. This is not correct. In addition, Mr Bodman concludes that the Applicant has attempted to mislead the ExA. This is unfounded. It arises due to Mr Bodman's incorrect understanding of the function and application of TEMPro growth within the NSTM2 modelling. For areas outside Northamptonshire, including Milton Keynes, future traffic growth in the NSTM2 is forecast using TEMPro. TEMPro is the DfT's approved dataset for forecasting traffic growth. The current version of TEMPro provides forecast growth up to 2051. The forecasts take into account, amongst other factors, projections of population, employment, housing and car ownership, and are based on the planned growth derived from local authorities. Therefore, the future year NSTM2 scenarios include for growth in all areas outside Northamptonshire, including Milton Keynes, along with growth within Northamptonshire.

ExQ2	Question to:	Question:	Applicant's Response
			Please also see the Applicant's response to Mr Bodman's response to ExQ1.11.23 within **Document 8.9** 'Applicants responses to other parties Deadline 2 submissions' (page 45) [REP3-009].
2.9.13.	The Applicant and any other IPs	Reference has been made to an editorial in the January 2019 edition of The Railway Magazine (see for example post-hearing submissions of Lyn Bird [REP4-025]). In this it is suggested that there is genuine concern whether rail will actually benefit (from various proposed SRFIs within the Midland) as there are neither guarantees nor incentives to do so. Also, that it's likely within a few years these terminals will end up being road-served because it's cheaper, convenient and more flexible, completely ignoring the green credentials rail can offer. Please comment on the above.	The Applicant does not agree with the opinion set out in the article which appears to be written without an understanding of the role of Strategic Rail Freight Interchanges in facilitating the transfer of goods from road to rail. The article also appears to fail to understand, or even refer to, the Government's most relevant policy on rail freight interchanges, in particular, the conclusion in the NPSNN that there is a "*compelling need for an expanded network of SRFI*" (para 2.56). The article raises questions about the presence of existing and proposed SRFIs in the Midlands. The article makes reference to two small rail terminals on relatively small sites as evidence that rail operations at new terminals will not be utilised and sites will be entirely road based. No reference however is made to the strategic rail freight interchanges in the Midlands, which have seen rail operations commence and grow. The situation portrayed by the article does not reflect this market evidence and fails to have regard to the market, sustainability and other factors that have informed the Government's policy as set out in the NPSNN. The Applicant has presented evidence on the rail freight market in the Market Analysis Report (**Document 6.8A** [REP1-004]). The position set out is further evidenced with recent announcements made by Maritime Transport. Maritime have announced that they

ExQ2	Question to:	Question:	Applicant's Response
			have signed a 25 year lease to operate the rail terminal at East Midlands Gateway. Maritime, who already operate the rail terminal at BiFT (Birch Coppice), has stated that the EMG terminal will be their flagship rail depot where they intend to attract a significant number of new rail services to the terminal. They expect the first trains to run from Autumn 2019. A copy of the Segro press release is attached at **Appendix 5.** Separately Maritime have also announced an agreement with DB Cargo to work together to increase rail freight capacity and competition in the intermodal market. A copy of the press release is attached at **Appendix 6.** The commitment of Maritime to invest in East Midlands Gateway and the joint announcement with DB Cargo are a major signal of the strength of the rail freight market and the opportunity that exists for growth. The investment in East Midlands Gateway clearly demonstrates the importance of new SRFIs in providing the necessary infrastructure to facilitate the growth in rail freight. A response to the Railway Magazine article has been written by the Rail Freight Group. In a letter to the Magazine the Rail Freight Group requests that the Magazine publish their response to the article. A copy of the Rail Freight Group's letter is attached at **Appendix 7.** The letter from the Rail Freight Group succinctly addresses the shortcomings of the article. It is clear that the Rail Freight Group believe that the article was ill informed and failed to apply any

ExQ2	Question to:	Question:	Applicant's Response
			balance. The Applicant agrees with the points raised by the Rail Freight Group.
2.9.14.	The Applicant	A number of interested persons make the point that Northampton University has moved to a new campus east of Northampton, e.g. Mr Declan Wilson. Please will the Applicant comment as to whether this been taken into account in the traffic modelling, data and the ES in general, and on its implications?	Please see the Applicant's response to Mr Bodman's response to ExQ1.11.23 within **Document 8.9** (page 45) [REP3-009], which confirms that the relocation of the University is accounted for in the NSTM2 and is therefore included in the traffic modelling data used in the ES. As the relocation is accounted for there are no implications for the assessment.
2.9.15.	The Applicant, HE	CIL Regulation 123. HE's attention is drawn to their answers to ExQ1:1.18 and to 1.11.2 [REP1-124]. The former says no contribution is being sought to the improvement of M1 Junction 15 and the latter says the improvements to Junction 15 are done through the Northampton Growth Management Scheme. Please can the Applicant and HE explain clearly how and by what mechanisms the Junction 15 improvements are intended to be secured? The specific question at 1.11.2 was "Is it therefore the view of HE and the local highway authority that appropriate capacity improvements to J15 are only	In answering this question, the Applicant has assumed that it was the ExA's intention to refer to Highways England's answer to ExQ1.11.18 not ExQ1.1.18. Please see the Applicant's response to Highways England's response to ExQ1.11.2 and ExQ1.11.18 within **Document 8.9** (page 2) [REP3-009]. In summary, Highways England have confirmed that there is no certainty that the proposals for J15 that were included in the Northampton Growth Management Strategy (NGMS) will be implemented and, therefore, they should not be included within the reference case modelling. The agreed position with Highways England is that the NGMS will not include any works at J15 and the improvement works at Junction 15 are those that will be implemented by the Applicant as

ExQ2	Question to:	Question:	Applicant's Response
		likely if led and funded by the Proposed Development?" Could HE please give its answer to that question?	shown on the highway plans (**Documents 2.4A** [APP-027] **and 2.4B** [APP-028]).
2.9.16.	The Applicant	ExQ1.11.6 – Enforcement of the site exit no right turn restrictions. This question was answered by reference to the proposed s.106 agreement. Please can the Applicant address it again, following the ExA's comments at ISH3 and any new draft s.106 the Applicant is submitting?	The physical constraint to a right turn for the HGV is incorporated in requirement 8(2)(l) and the monitoring provisions are now incorporated in the DCO as requirement 4(9) (please see updated dDCO submitted for **Deadline 5** (**Document 3.1D**). Please also see the updated DCO Changes Tracker (**Document 3.4C**).
2.9.17.	The Applicant	ExQ1.11.8 – the Public Transport Strategy and the new bus service – its funding and delivery. This question was also answered by reference to the proposed s.106 agreement. Please can the Applicant address it again, following the ExA's comments at ISH3, the expanded Requirement 4, and any new draft s.106 the Applicant is submitting? The ExA would be grateful if it could be explained what the mechanisms will be to provide funding for the bus service and its delivery. Or is the mechanism robust enough that the ExA, SofS and RPAs (on which the burden of enforcement will fall)	The scheme for the provision of public transport is two-fold. Requirement 4(3) will ensure that the public transport strategy is implemented and complied with at all times. That strategy will be effectively monitored and governed by the Sustainable Transport Working Group as provided for in requirement 4(6) and Schedule 15. Monies to provide for the bus service subsidy in the initial stages of the development are provided by means of the obligations in paragraphs 1.1 and 1.2 of Schedule 2 to the s.106 Agreement ((**Document 6.4B**) submitted to the ExA on 11 February 2019) and are under the direction of the Sustainable Transport Working Group.

ExQ2	Question to:	Question:	Applicant's Response
		need not be concerned that funding is a matter which needs to be addressed? If so, please can the Applicant explain how?	
2.9.18.	The Applicant	ExQ1.11.9 – Funding for travel plans and incentives. This question was also answered by reference to the proposed s.106 agreement. Please can the Applicant address it again, following the ExA's comments at ISH3, the expanded Requirement 4, and any new draft s.106 the Applicant is submitting? The ExA would be grateful if it could be explained what the mechanisms will be to provide funding for travel plans and sustainable travel incentives. Or is the mechanism robust enough that the ExA, SofS and RPAs (on which the burden of enforcement will fall) need not be concerned that funding is a matter which needs to be addressed? If so, please can the Applicant explain how?	The travel plans and the measures contained therein – both the framework travel plan and the individual occupier travel plans – are required to be complied with by virtue of Requirement 4(1) and 4(2). Please see also the response to DCO:16 of the Applicant's Response to ExA's Commentary on the DCO (**Document 8.19** [REP3-009]).
2.9.19.	The Applicant	ExQ1.11.26; 1.11.27; and 1.11.28. Please will the Applicant address these questions again, now that the Public	ExQ1.11.26

ExQ2	Question to:	Question:	Applicant's Response
		Transport Strategy is being secured by the Requirements?	Please see revised wording of response to this question which, in essence, replaces references to the s.106 Agreement with references to the requirements and Schedule 15 of the DCO. The Sustainable Transport Working Group is secured by requirement 4(6) - (8) as set out in the dDCO submitted for **Deadline 5** (**Document 3.1D**). The membership of the Sustainable Transport Working Group will comprise key stakeholders as set out at paragraph 1 of Schedule 15 of the dDCO. As set out in Schedule 15, the STWG will be administered by the undertaker in accordance with the protocol set out in paragraph 3 of Schedule 15. This proposed arrangement, in particular the role of the STWG, is similar to the arrangements in place at DIRFT III and East Midlands Gateway. ExQ1.11.27 The answer to this question remains the same. The precise bus services will be the subject of discussion and agreement in accordance with the public transport strategy through the STWG. ExQ1.11.28 Please see response to ExQ2.9.17 above.
2.10.	**Water Environment**		
2.10.1.	The Applicant, Anglian Water	In answer to ExQ1.12.9 (Doc 8.2 [REP1-020]) relating to water mains	Anglian Water will be supplying the proposed Northampton Gateway development with its required potable water supply via

ExQ2	Question to:	Question:	Applicant's Response
		infrastructure design, the Applicant stated that the Anglian Water integrated Mains Works Team was preparing a detailed design for the required off-site water main that would cross the M1 motorway. It was expected that a detailed design would be complete by 30 March 2019. Can an update on progress of this design please be provided? If not yet complete, but is likely to be so before the close of the Examination, can the Applicant please undertake to provide details when complete?	existing trunk main infrastructure. The precise design of the connection between the main site utilities infrastructure and the Anglian Water existing network is ongoing however, there is no committed timetable since Anglian Water will not finalise the detailed design of the work until post approval, as is their normal practice.
2.11.	**Geology, Soils and Groundwater**		
2.11.1.	The Applicant	The response to ExQ1.5.7 (Doc 8.2 [REP1-020]) by the Applicant is noted. However, in relation to answer (ii), please can the Applicant confirm where the firm commitment to work with the supply chain has been captured within the Requirements?	The requirement for contractors to work with the supply chain to identify and utilise suitable recycled aggregated where they are available within suitable travel distances will be included in the CEMP. The Applicant proposes to submit an updated version of the CEMP to the ExA for **Deadline 6**. The commitment will therefore be secured by Requirement 12.
2.11.2.	SNC	In relation to the Applicant's response to ExQ1.5.5 (Doc 8.2 [REP1-020]) and Appendix 14 of Responses to the ExA's Written Questions (Part 2) (Doc 8.2 [REP1-021]), please can the Council	

ExQ2	Question to:	Question:	Applicant's Response
		confirm that the proposed approach in paragraph 6.4.2 of ES Chapter 6 (Geology, Soils and Groundwater) (Doc 5.2 [APP-092]) is considered acceptable in regard to the discounting of works on six outlying junctions, including M1 J15a?	
2.12.	**Lighting**		
2.12.1.	The Applicant	Paragraph references are to those in ES Chapter 11 (Lighting) (Doc 5.2 [APP-115]) unless stated otherwise. Paragraph A11.3.5 of Appendix 11.3 Lighting Strategy (Doc 5.2 [APP-228]) states that luminaires will use LED light sources wherever possible. At paragraph A11.3.12 it is stated that light sources will be LED with no UV content. Please can the Applicant confirm whether all light sources will be LED with no UV content or just in locations close to ecologically sensitive areas?	All light sources will be LED with no UV content. This is an inherent property of LED light sources. The absence of UV means that LED light sources generally have lower potential impacts on ecology in comparison with some other types of light source, and hence this was highlighted in A11.3.12.
2.12.2.	The Applicant	Paragraph 11.6.2 – It is noted that the creation of the earthworks bunding is proposed to commence early during the construction phase. Given that the Applicant states that such earthworks will	The Main Site phasing plan (ES Figure 2.3) envisages that the bunding will be completed within two years following commencement of construction, with certain areas of bunding such as that between the Northampton Loop line and the rail terminal being completed at the end of the first year of construction.

ExQ2	Question to:	Question:	Applicant's Response
		play a direct role in the mitigation of construction lighting effects, please can the Applicant confirm how long the bunding will take to complete?	Therefore, the majority of the bunding will be in place before the first units are constructed and will be all complete prior to first occupation. However, the phasing of the development on the main site is a matter to be approved by the relevant planning authority under Requirement 3.
2.12.3.	The Applicant	Pages 7 and 8 of Appendix 11.4 – Assessment of Lighting Effects (Doc 5.2 [APP-229]). With reference to Roade - properties on the north west side of Dovecote Road numbers 24-54 (A) and Roade-White House Farm, Northampton Road (A) – is the change in (4) assessed as medium once the new deciduous planting has matured? If not, what would the change be to (4) once planting has matured? Please can the Applicant confirm what the definition of maturity is and what is the anticipated time period for the planting to reach maturity?	This question refers to 'light presence' effects – that is light sources and other lit elements appearing in dark views. The change is assessed having taken account of the mitigation provided by the Lighting Strategy, and earthworks and landscaping proposals at the Bypass, but does not assume the proposed planting has matured. In this regard, it is a robust, or worst-case assessment based on the near-term impacts. Although there will be some evergreen species, the majority of the planting will be deciduous and thus, even when mature, will not completely screen lit elements when not in leaf (typically early November to end of March). However, planting will deliver some additional mitigation benefits for nearby receptors as it matures – it is hard to define the period for maturity of landscaping in a definitive way, but a period of between 10 and 15 years is commonly applied. To assist with understanding in more detail the nature of this lighting effect and its significance, the following may be helpful:

ExQ2	Question to:	Question:	Applicant's Response
			• The effect is purely visual and is only relevant for an observer looking in the direction of the roundabout at night. Furthermore, the observer needs to have dark adapted vision by being situated in a dark environment (for example standing in a rear garden or looking out from an unlit room). In all other circumstances the effect will not be experienced. • Awareness of such effects are quite subjective, and are only relevant for observers who currently value dark views in this direction. It is likely that some occupiers of these receptor locations will be indifferent to this effect. • Lit elements (oblique sighting of LED light sources; glancing illumination of the tops of lighting columns) will not appear bright since modern road lighting systems are very efficiently designed to target as much light as possible at the trafficked surfaces, any stray light consequently being of low brightness.
2.12.4.	The Applicant	Comments on Deadline 1 – Responses on behalf of Ashfield Management Ltd and Gazeley GLP Northampton s.a.r.l Appendix 1 [REP2-016]. Rail Central states that it considers it is unclear if the potentially varying bund height would fully mitigate any proposed gantry cranes and floodlighting.	Please refer to pages 5 and 6 of Appendix 11.4 of the ES (**Document 5.2** [APP-229]). Please also see the Parameters Plan – Minor Changes document submitted for **Deadline 5** (**Document 8.15**). It can confidently be stated that the bunds will obscure all of the most prominent lighting features, including the illuminated ground and activities taking place thereon, the lower parts of building facades and the vast majority of light sources from properties that might otherwise have direct (albeit sometimes distant) views into the main site.

ExQ2	Question to:	Question:	Applicant's Response
		Please could the Applicant confirm whether the bund heights would fully mitigate such lighting?	However, for more distant and/or elevated receptors, the assessment already acknowledges there will be a small change in light presence (lighting effect 4). These receptors include: • Milton Malsor – residential properties at east and southeast fringe with full or partial direct views of the Main Site; and • Blisworth – residential properties at northeast fringe with full or partial direct views towards the Main Site. This change potentially arises from very oblique views of gantry and rail terminal high mast floodlighting, as well as a few other light sources. Nevertheless, the efficient design of modern lighting systems ensures that any stray light will be of low brightness. It is expected that planting on the bunds will filter and screen all remaining light presence effects within 10 years.
2.13.	**Agricultural Land Quality**		
2.13.1.	The Applicant	Paragraph references are to those in ES Chapter 13 (Agricultural Land Quality) (Doc 5.2 [APP-117]) unless stated otherwise. Paragraph 13.3.10 states that "As few built developments are likely to require more than 50% of topsoil for reuse,	The reasoning is that developments on greenfield sites require a proportion of the original topsoil to be retained to support plant growth in landscaped areas and other green spaces retained or provided. This requirement rarely exceeds 50% of the pre-development topsoil volume (because typically at least half of development sites will accommodate built/hard surfaces). It is possible that without an appropriately sensitive and well managed approach to construction that topsoils can be lost or damaged on a

ExQ2	Question to:	Question:	Applicant's Response
		losses below this figure are regarded as minor". The response provided by the Applicant at ExQ 1.13.1 (Doc 8.2 [REP1-020]) confirms that that origin of the 50% is unknown. Please can the Applicant confirm how the assertion that losses below this figure would have a minor environmental effect?	large-scale (e.g. by mixing with other materials or compaction). This could leave a shortfall of material for landscaping which then needs to be imported at environmental cost (which clearly ought to be avoided). Some loss of topsoil resource would only be considered a minor impact, provided it didn't exceed the volume of soil required for the development – this then means the site is self-sufficient in soil resources, negating the need for importing soil, and additional environmental impacts associated with transport, etc.
2.13.2.	The Applicant	Paragraph 13.6.1 makes reference to a Soil Management Plan, with Requirement 13 referring to an earthworks strategy. Please can the Applicant confirm whether the Soil Management Plan is separate to the earthworks strategy or whether it would form part of the strategy?	Requirement 13(a) requires an earthworks strategy to be approved, one element of which is the "management and protection of soils". That is, in substance, the same as a soil management plan. It is therefore part of the earthworks strategy and not separate from it.
2.13.3.	The Applicant	Paragraph 13.6.4. Please can the Applicant confirm what specific mechanical means will be utilised to partially ameliorate subsoil compacted during construction?	The most common method for decompacting subsoil is to use a tracked excavator equipped with a ripping tooth. The soil is ripped to a depth of 600mm in rows at 600mm centres, this is done in two directions at 90 degrees to each other. For larger areas a tractor drawn subsoiler with winged tines can be used.

ExQ2	Question to:	Question:	Applicant's Response
		Can the Applicant also confirm why such a process would only partially ameliorate compaction?	The term "partially ameliorated" refers to the fact that decompaction will never fully restore the structure of the subsoil, it will however improve the structure and condition.
2.14.	**Waste and Resource Management**		
2.14.1.	The Applicant	Paragraph references are to ES Chapter 14 (Waste) (Doc 5.2 [APP-122]) unless stated otherwise. Table 14.1 Principles of Waste Management - Definitions. The definitions for both 'Waste as a Resource' and 'Proximity Principle' appear identical. Please can the Applicant confirm that this is correct?	Apologies for this. The definition of 'Waste as a Resource' is correct. The definition of the 'Proximity principle' is not correct and is correctly defined as follows. **Proximity Principle -** the need to treat and/or dispose of wastes in reasonable proximity to their point of generation. The principle works to minimise the environmental impact and cost of waste transport.
2.14.2.	The Applicant	Paragraphs 14.4.2 and 14.4.5. The arising figures for the Northampton Region for the financial year 2014/2015 are taken from the Northamptonshire Minerals and Waste Monitoring Report 2016. Is an updated version of the Monitoring Report available? If so, would this result in a change in the figure?	The Applicant can confirm that having reviewed the source of this data, a more recent arisings figure is not yet available. The latest available data, from the 2016 report, has been used in the assessment.

ExQ2	Question to:	Question:	Applicant's Response
		If an updated figure is available, please can the Applicant provide this and comment on any impact to the assessment?	
2.14.3.	The Applicant	Paragraph 14.4.7 and response to ExQ1.15.4 (Doc 8.2 [REP1-020]). Are figures available to confirm that the decrease has continued after 2015?	The UK Statistics on Waste C&I waste arisings do not, as yet, provide data beyond 2014. The assessment therefore uses the most recently available data.
2.14.4.	The Applicant	Paragraph 14.4.10 - The regional landfill and waste management capacity for the area is based on the Northamptonshire Minerals and Waste Monitoring Report 2016. As with question 2.14.2 above, is an updated version of the Monitoring Report available? If an updated figure is available, please can the Applicant provide this and comment on any impact on the assessment.	Please see the response to ExQ2.14.2 above.
2.14.5.	The Applicant	Paragraph 14.4.12 states that there may be a requirement to transport non-inert waste arisings off site.	The nearest landfill for non-inert wastes with adequate capacity is: Rushton Landfill, Oakley Rd, Rushton, Kettering

ExQ2	Question to:	Question:	Applicant's Response
		Please can the Applicant confirm the location of the nearest facility with adequate capacity?	NN14 1QT
2.14.6.	The Applicant	Paragraph 14.5.17 and response to ExQ1.15.11 (Doc 8.2 [REP1-020]). The Applicant states in its response to ExQ1.15.11 that 'In reality, based on our experience from other similar schemes, the recycling rate is likely to be higher'. Please can the Applicant provide detailed information and figures as to the levels of recycling at similar schemes?	The Applicant has obtained data from Winvic Construction Ltd (WCL) in respect of the East Midlands Gateway (EMG) SRFI to assist with this ExQ. WCL is the principal contractor at EMG for the SRFI including the majority of the highway works, main site infrastructure rail terminal, railway and the first four warehouses. EMG commenced construction in January 2017 and WCL's data shows that 97.9% of construction, demolition and excavation (CD&E) waste arisings were recycled and only 2.1% was sent to landfill. The Applicant provided at Appendix 20 of the responses to the ExA's first written questions (**Document 8.2** [REP1-021]) data for Buckingham Group Contracting Ltd (BGCL). BGCL are a major civil engineering contractor and have undertaken one of the packages of highway works at EMG, and they are also the principal contractor on the Doncaster iPort SRFI, undertaking all of the infrastructure and most of the building works. The Applicant therefore suggests that the BGCL data provides a good benchmark for other SRFIs. It can be seen on page 4 of the BGCL document that for the "reduce waste" target, BGCL in 2017 were, across their portfolio of civil engineering schemes, able to divert 96.4% of waste away from landfill and exceed their own target of 95%.

ExQ2	Question to:	Question:	Applicant's Response
			The above clearly demonstrates that the Applicant's assessment using an 89% recycling rate for CD&E waste is robust and that the actual recycling rate is likely to be higher.
2.14.7.	The Applicant	Paragraph 14.6.12 and response to ExQ1.15.21 (Doc 8.2 [REP1-020]). Paragraph 3 of the response provided by the Applicant states "It is within the future operators' commercial interests to ensure that waste arisings are reduced during the operational phase so as to avoid high landfill tax payments". This response is noted, alongside the fact that the scoring and the assessment of residual effects does not rely on the mitigation measures at paras 14.6.10 to 14.6.14. Nevertheless, please can the Applicant confirm how the need for individual occupiers to arrange and manage a commercial contract will be secured?	Requirement 27 of the dDCO states that no component of the authorised development on the main site can be brought into use until a scheme for waste management has been approved. That scheme is required to accord with the framework site waste management strategy contained in Appendix 14.2 of the ES. Thereafter the scheme must be complied with. In complying with its approved scheme an occupier will need to ensure that the commercial contracts it enters into are compatible with the requirements of that scheme.
2.14.8.	The Applicant	Table 14.6 Mitigation Measures column details the use of prefabricated construction techniques.	Paragraph 14.6.6 of the ES refers to the potential use of prefabrication during the construction process and, as referred to in ExQ2.14.8, this approach will be adopted "where practicable". It would therefore be a matter for determination through the detailed design of the scheme (Requirements 8 and 9), in conjunction with

ExQ2	Question to:	Question:	Applicant's Response
		Within the Applicant's updated Commitments Tracker (Doc 6.11A [REP3-003]) it is stated that such a technique will be used where practicable. Please can the Applicant confirm how this would be secured via Requirements 8, 9 and 12 and what the practicable circumstances would be required for the use of such a technique?	the appointed contractor. It would be determined with regard to the nature and scale of the specific structures or features being constructed, and cannot be determined in detail at this stage. However, examples of items which can often be in part or full prefabricated include: • Culverts and other bridge structures (e.g. over watercourses, etc.); • Drainage infrastructure; • Steelwork and associated components; • Cladding; • Ground beams; • Ecology tunnels for enabling safe crossing routes for wildlife; and • Some parts of the internal 'fit-out' of buildings. In order to be considered practicable, there would need to be suitable products available without incurring additional cost or environmental penalties such as significantly longer delivery distances. Where prefabrication is to be deployed it is anticipated that it would feature in the relevant P-CEMP, where relevant. The revised CEMP, will be submitted for **Deadline 6** to refer to the need for the P-CEMP to include proposals for pre-fabrication.
2.15.	**Construction Environmental Management Plan (CEMP)**		

ExQ2	Question to:	Question:	Applicant's Response
2.15.1.	All questions are to the Applicant unless stated otherwise in this column.	These questions are on V.3 of the CEMP, January 2019 (Doc 5.2 [AS-048]). Paragraph references below are to those in this version of the CEMP.	
2.15.2.	Applicant, SNC and NBC	The CEMP is not always wholly consistent with the Requirements and has to potential in places to arrive at different mitigation (see for example hours of work). This is almost inevitable with two documents. Please will the Applicant, SNC and NBC give consideration and comment on the appropriateness of including a statement, prominently at the beginning of the CEMP that (1) where there is a conflict between the CEMP and the Requirements, the Requirements are to prevail and (2) that the governing documents are the DCO with its Requirements?	The Applicant agrees that the proposed additional wording for the CEMP would be helpful in ensuring consistency. A revised CEMP will be submitted for **Deadline 6**.
2.15.3.		Para 4.23. This states that landscaping will be installed at the first available planting season after the completion of that Component. But Requirement 10 provides for the timing of landscaping. In principle, should not the timings and	The Applicant agrees that the proposed additional wording for the CEMP would be helpful in ensuring consistency. A revised CEMP will be submitted for **Deadline 6**.

ExQ2	Question to:	Question:	Applicant's Response
		details all be included in Requirements, and should it not be made clear that in case of a conflict the Requirements prevail?	
2.15.4.		Paras 4.24 and 4.25 address the order of works. How does this relate to the phasing set out on Requirement 3? Would it not be better to cross-refer to the phasing settled pursuant to that Requirement?	The Applicant agrees that it would be helpful if the CEMP cross referred to the phasing settled pursuant to Requirement 3. The CEMP will be amended accordingly and will be submitted for **Deadline 6**.
2.15.5.		Para 6.15 – this allows site personnel to arrive "shortly before" the time restrictions in para 6.12 and following. It also allows them to leave "shortly after them". The test for a valid requirement includes the test of certainty and enforceability. Should this not also apply to the CEMP, deriving as it does from a Requirement?. Does the use of "shortly" comply with that test?	The Applicant understands the need for certainty and enforceability. The CEMP will be amended to allow site personnel to arrive and depart no more than 30 minutes before or after the time restrictions in paragraph 6.12. A revised CEMP will be submitted for **Deadline 6**.
2.15.6.		Para 7.4 contemplates the use of non-potable water for dust control. Will that require an abstraction licence and, if so, is such a licence likely to be granted? Please explain the basis for the answer.	The water run off from the site will be controlled via the early formation of attenuation ponds and these will be used as the water source for dust suppression. The Lias clay that is found on site lends itself to this strategy as it is highly plastic, a property which means that the level of run off is effective and risk of dusting low.

ExQ2	Question to:	Question:	Applicant's Response
			This strategy has been successful at EMG with less suitable subsoils. Abstraction licences will not be necessary.
2.15.7.		Para 11.1 "the watercourse that may be affected" – should this read "any watercourse …"?	Yes, the Applicant will amend this in the CEMP to be submitted for **Deadline 6**.
2.15.8.	HE, NCC	Para 14.1 – Routeing of construction traffic – the project manager, as the para stands at the moment, is to obtain the agreement of both Highways England AND the County Council but "as appropriate for the relevant component". Should this read "OR the County Council?	The Applicant's view is that there will be components of work, for example the work on the main site, where routeing of construction traffic needs to be agreed with both Highways England and Northamptonshire County Council. For other components, for example some of the smaller highway improvement works, routeing of construction traffic would only need to be agreed with Northamptonshire County Council. The Applicant therefore suggests the wording should read "and/or Northamptonshire County Council" and will amend this in the CEMP to be submitted for **Deadline 6**.

Abbreviations used

CEMP	*Construction Environmental Management Plan*
dDCO	*Draft DCO*
ES	*Environmental Statement*
ExA	*Examining authority*
FTP	*Framework Travel Plan*
FWQ	*First Written Questions*
IP	*Interested Party*
LIR	*Local Impact Report*
NBC	*Northampton Borough Council*
NCC	*Northamptonshire County Council*
NPSNN	*National Policy Statement for National Networks*
para	*Paragraph*
PTS	*Public Transport Strategy*
RPA	*Relevant Planning Authority*
SI	*Statutory Instrument*
SNC	*South Northamptonshire Council*
SoCG	*Statement of Common Ground*
SoS	*Secretary of State*

Appendix 1

ExQ2.0.3 – Rail Central Footpath Connections Note

TECHNICAL NOTE
NORTHAMPTON GATEWAY
RAIL CENTRAL FOOTPATH INTERFACE

BETTER SOLUTIONS, INTELLIGENTLY ENGINEERED

1 INTRODUCTION

1.1 The purpose of this technical note is to review the interface between the Northampton Gateway (NG) scheme and the public footpath diversions as proposed by Rail Central (RC).

1.2 This technical note is written to address the scenario where both RC and NG are granted development consent.

2 RC PROPOSALS

2.1 RC have proposed a diversion of public footpaths KX13 and KX15 that is, in part, located on land to the east of the Northampton Loop railway line and thus within the NG site. The RC proposals are set out in their documentation for their application for development consent (in October 2018) and the relevant documents are:

- RC Document 2.6: Plan showing public rights of way to be stopped up (Sheets 2 and 3)
- RC Document 2.20: Rail interchange illustrative general arrangement
- RC Document 2.44: Public rights of way strategy (Sheets 2 and 3)

2.2 It is difficult to determine from the RC plans exactly where the proposed footpath diversion is to run east of the railway line. This is in part due to RC docs 2.6 and 2.44 showing different alignments for the right of way (see **Figures 1 and 2** below). As it is RC doc 2.6 that is referred to within the RC draft DCO at Schedule 5 (RC doc 3.1) then it is this document that is taken to be the formal proposal. The alignment of the footpath on RC doc 2.6 appears to be the same as that shown on RC doc 2.20.

2.3 The diversion route is most clearly shown on the rail interchange plan (RC doc 2.20) and it is clear from this plan that the southern section of the diversion is proposed to run within Network Rail (NR) owned land for a considerable distance as shown on **Figure 3** below (extract from RC doc 2.20). It is not known if NR have agreed to this proposal.

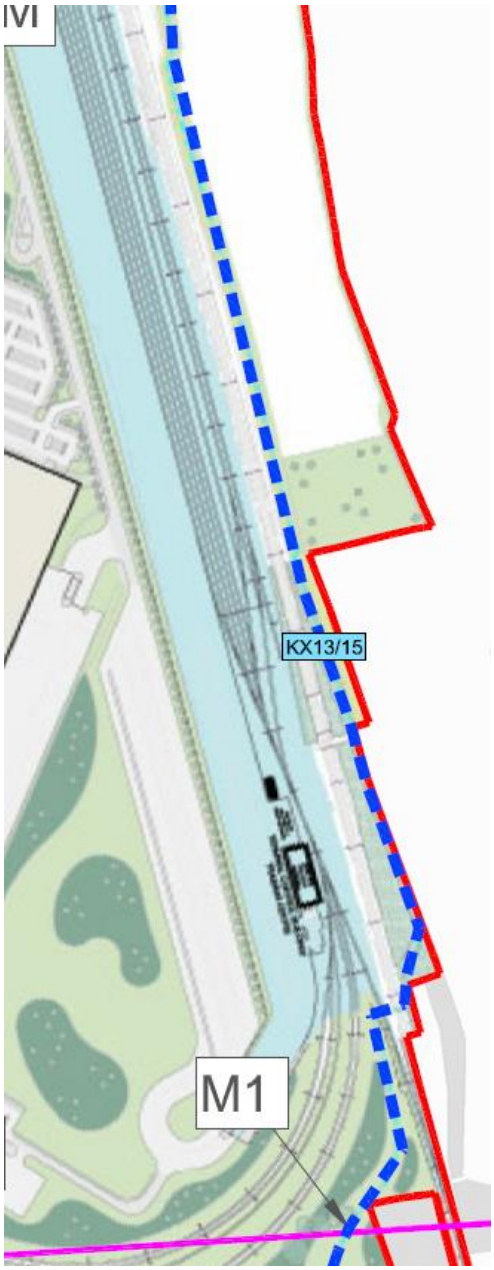


Figure 1 RC extract from RC doc 2.6

Figure 2 RC extract from RC doc 2.44

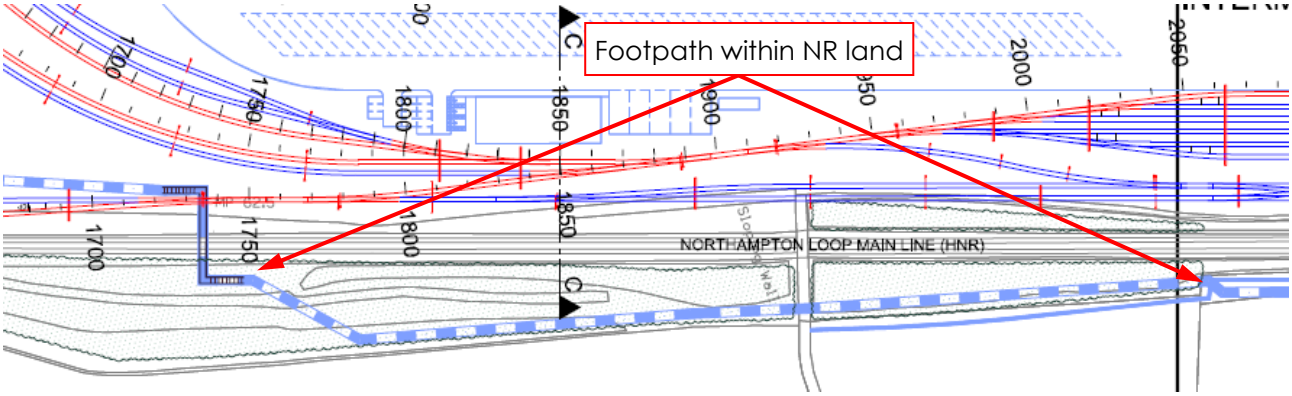


Figure 3: Annotated extract from RC doc 2.20

3 NG PROPOSALS

3.1 The NG scheme proposes a new public footpath along a similar corridor to the east of the Northampton Loop railway line, but this is wholly within the NG site and not within NR owned land. The NG proposals are shown on NG documents 2.3A and 2.3C.

4 INTERFACE

4.1 It is clearly sensible that only one public footpath is provided to the east of the railway line. Given that the route of the footpath has to be designed to suit the NG strategic screening bund and the NG railway works, it is wholly appropriate that the route of this path is that shown on the NG plans and not the RC plans. However, it is recognised that connections from this path might need to be made into the wider diversions as proposed by RC. There are two such connections proposed.

4.2 Drawing NGW-BWB-GEN-SK-DR-D-SK87-S2-P2, found at **Appendix 1**, shows the footpath interface between the two schemes including the two points of connection.

Northern connection (RC Proposal)

4.3 The northern connection can be made by a simple alteration to the alignment of RC's proposed footpath diversion so that it connects to the path provided by the NG scheme. This is all within the current RC order limits.

Southern connection (NG Proposal)

4.4 The current alignment of the footpath proposed by RC, near the southern connection, is not compatible with NG as it is located in close proximity to NG's railway works and its junction with the Northampton Loop railway line. The footpath route as proposed by RC would be impacted by the NG railway and its associated earthworks, overhead line equipment, signalling and other railway infrastructure. It would clearly not be acceptable to allow the RC footpath connection to hamper the ability of NG to provide the railway connection and the strategic screening bund.

4.5 For reference NG have always maintained that the RC footpath works are incompatible with NG. The following is taken from the NG Environmental Statement (NG Document 5.2), paragraph 15.3.11:

"It should be noted that the Rail Central scheme as currently proposed (Stage 2 consultation) is incompatible with the Northampton Gateway development applied for in respect of the footpath proposed by Rail Central to the east to the Northampton Loop Line."

4.6 This point was further emphasised in the updated cumulative impact assessment (NG Document 8.13) at paragraph 2.253:

"The location of the Rail Central proposed crossing for diverted PRoW KX13 is incompatible with the required earthworks for the Northampton Gateway scheme at the southern rail spur. However, it is considered that this could be addressed by an amendment to the Rail Central scheme, to move the location of the proposed Rail Central KX13 crossing south".

4.7 To allow a simple connection to be made to the NG footpath, away from the NG railway works and screening bund, the RC footpath should be moved to the south. This would also be simpler for RC to construct. The proposal is shown on drawing NGW-BWB-GEN-SK-DR-D-SK87-S2-P2, found at **Appendix 1**. The suggested southern route is shown with a dashed black line on that drawing.

4.8 This requires a change to the submitted RC footpath proposals and a minor change to their order limits. However, with this change made, the footpath works in the two schemes would be compatible.

5 CONCLUSION

5.1 Assuming both schemes proceed then the public footpath route east of the Northampton Loop railway line must be that proposed by the NG scheme with suitable connections to the RC diversions.

5.2 It is clearly not acceptable for RC's footpath works to hamper the ability for NG to provide the railway connection and strategic screening bund. The southern connection is a proposed solution that overcomes this issue which can be implemented by RC. This would require a change to their footpath works and their order limits.

6 RECOMMENDATIONS

6.1 The southern connection should be provided as shown on drawing NGW-BWB-GEN-SK-DR-D-SK87-S2-P2, found at **Appendix 1**.

6.2 RC should submit an alternative Access and Rights of Way Plan, with corresponding provision within their draft DCO, so that in the event that NG is granted consent they would implement the footpath connection works as shown on drawing NGW-BWB-GEN-SK-DR-D-SK87-S2-P2, found at **Appendix 1**.

BETTER SOLUTIONS, INTELLIGENTLY ENGINEERED

Appendix 1

Drawing NGW-BWB-GEN-SK-DR-D-SK87-S2-P2

Milton Malsor

Collingtree

Inset A

M1

KX16

KX8

KX7

KX13

KX15

KX17

Barn Lane

Northampton Gateway's diversion in lieu of Rail Central's proposals

WCML - Northampton Loop

Rail Central Development

Northampton Gateway Development

West Coast Main Line

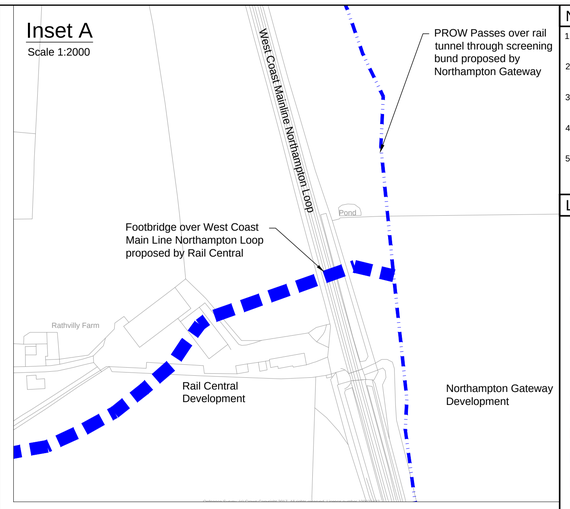
Inset B

Blisworth

Y:\NTH\NTH2315_M1 J15 SRFI\02. Project Delivery\01. WIP\Sketches\NGW-BWB-GEN-XX-SK-C-SK87_NGW's & RC's PROWs.dwg

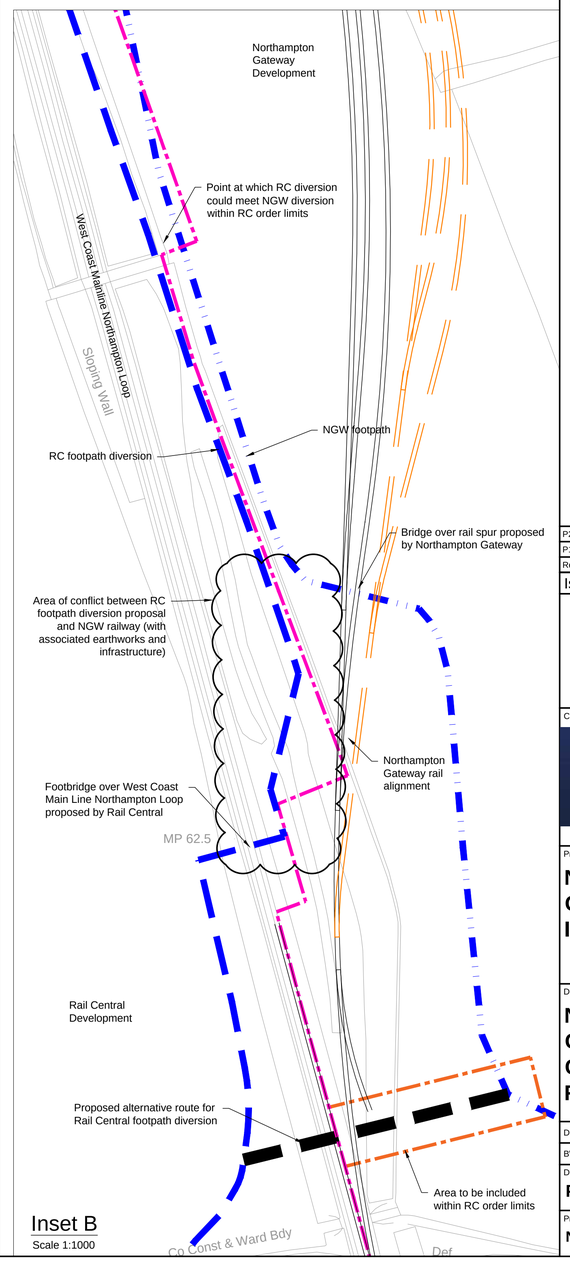
Inset A

Scale 1:2000



Inset B

Scale 1:1000



Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in millimetres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.
5. This drawing is based on the combined Northampton Gateway PROW Plans and the Rail Central Public Rights of Way Strategy Plans

Legend

NORTHAMPTON GATEWAY

- EXISTING PUBLIC RIGHT OF WAY RETAINED
- EXISTING PUBLIC RIGHT OF WAY STOPPED UP
- NEW PUBLIC FOOTPATH CREATED
- NEW PUBLIC BRIDLEWAY CREATED
- NEW CYCLE TRACK CREATED (ALL PURPOSE HIGHWAY FOR USE BY PEDESTRIANS AND CYCLISTS ONLY)

RAIL CENTRAL

- EXISTING RETAINED PUBLIC RIGHT OF WAY
- EXISTING EXTINGUSHED PUBLIC RIGHT OF WAY
- PROPOSED PUBLIC RIGHT OF WAY
- PROPOSED COMBINED CYCLEWAY / PUBLIC FOOTPATH
- EXISTING HIGHWAY TO BE STOPPED UP
- ORDER LIMITS (INSET B ONLY)

Rev	Date	Details of issue / revision	Drw	Rev
P2	20.02.19	RC path route amended and RC order limits added	SRH	SRH
P1	23.11.18	Preliminary Issue	PG	SRH

Issues & Revisions

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Client

NORTHAMPTON GATEWAY STRATEGIC RAIL FREIGHT INTERCHANGE

Project Title

NORTHAMPTON GATEWAY RAIL FREIGHT INTERCHANGE

Drawing Title

NORTHAMPTON GATEWAY AND RAIL CENTRAL'S PUBLIC RIGHTS OF WAY

Drawn:	P. Goodyear	Reviewed:	S. Hilditch	
BWB Ref:	NTH 2315	Date:	23.11.18	Scale@A1: 1:5000

Drawing Status

PRELIMINARY

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
NGW-BWB-GEN-XX-SK-C-SK87	S2	P2

Appendix 2

ExQ2.1 Series – Applicant's Air Quality Position Statement

NORTHAMPTON GATEWAY

APPLICANTS POSITION STATEMENT ON AIR QUALITY

Introduction

1. The ExA has raised a significant number of queries in relation to the Applicant's Air Quality Assessment in the First Written Questions and Second Written Questions.

2. The queries raised have highlighted a number of incorrect cross references and incorrect transposition of data within the tables which has resulted in two further versions of the Air Quality chapter being submitted, the latest being contained in **Appendix 3** to the Applicant's Responses to ExQ2 – **Document 8.17**. For the avoidance of doubt, the changes to the Air Quality chapter are consistent with, and do not affect, the conclusions drawn in the original air quality chapter.

3. Nevertheless, it is appreciated that the errors have not assisted the ExA, and potentially others, in obtaining a clear understanding of the conclusions of the Air Quality assessment which are themselves unchanged and are the matter of agreement between the Applicant and the relevant local authorities.

4. The conclusions are therefore re-stated below by reference to the relevant paragraphs in the NPSNN and the evidence base for those conclusions. The paragraphs referred to below, in bold italic, are in section 5 of the NPSNN titled "Generic impacts" and are set out under the heading "Air Quality" in the NPSNN.

Applicant's assessment

Para 5.7

"The environmental statement should describe:

- ***Existing air quality levels:***

- ***Forecasts of air quality at the time of opening, assuming that the scheme is not built (the future baseline) and taking account of the impact of the scheme; and***

- ***any significant air quality effects, their mitigation and any residual effects, distinguishing between the construction and operation stages and taking account of the impact of road traffic generated by the project."***

5. The AQ ES chapter complies with all of the above bullet points, as follows:

- The existing air quality levels are dealt with in Section '9.4 Baseline Conditions'.

- The future opening year has been assessed with and without the scheme in paras:

    - 9.5.52-63 (for Northampton AQMA No.1);

- 9.5.64-74 (for Northampton AQMA No.5);
- 9.5.75-90 (for Northampton AQMA No.4);
- 9.5.91-101 (for Northampton AQMAs Nos. 2, 6 & 8);
- 9.5.102-115 (for AQMA No.3);
- 9.5.116-130 (for Roade and West Lodge Cottages);
- 9.5.131-132 (for Roade Bypass);
- 9.5.133-141 (for Blisworth and Milton Malsor);
- 9.5.142-149 (for Towcester);
- 9.5.150-156 (for Hartwell); and
- 9.5.157-163 (for Grafton Regis and Pottersbury).

Any significant effects have been identified in the above paras. A summary of the impact significance in each study area is also presented in Table 9.35. The mitigation identified in Section 9.6 and residual effects identified in Section 9.7 take account of road traffic and distinguish between the construction and operation of the project.

Para 5.8

"Defra publishes future national projections of air quality based on evidence of future emissions, traffic and vehicle fleet. Projections are updated as the evidence base changes. Applicant's assessment should be consistent with this but may include more detailed modelling to demonstrate local impacts"

6. At paras 9.4.1-5, the AQ ES chapter refers to the Defra future predictions. The Applicant's assessment used, and was therefore consistent with, these predictions. However, more detailed modelling was undertaken to demonstrate local impacts. The methodology of this modelling is described in para 9.3.16-28. The results of the modelling are presented in paras 9.5.52-169.

Para 5.9

"In addition to information on the likely significant effects of a project in relation to EIA, the Secretary of State must be provided with a judgement on the risk as to whether the project would affect the UK's ability to comply with the Air Quality Directive"

7. The judgement on the risk as to whether the project would affect the UK's ability to comply with the Air Quality Directive is contained in paras 9.5.177-181 of the AQ ES chapter.

8. In summary, the project would not affect the UK's ability to comply with the Air Quality Directive. This is because the EU limit values have been assessed and remain in compliance in the affected zone following the operation of the scheme.

Decision making

Para 5.10

"The Secretary of State should consider air quality impacts over the wider area likely to be affected, as well as in the near vicinity of the scheme"

9. The Air Quality assessment has considered air quality impacts over the following areas:

    - The near vicinity of the main site and AQMAs in Northampton;
        - AQMA Nos. 1-8 (excluding no.7, which was revoked in 2011) (Figures 9.6-12);
    - Local areas further from the main site;
        - Roade and West Lodge (Figure 9.13);
        - Blisworth & Milton Malsor (Figure 9.14);
        - Towcester (Figure 9.15);
        - Hartwell (Figure 9.16); and
        - Grafton Regis & Pottersbury (Figure 9.17);

10. At least fifty-seven other AQMAs across the UK are likely to result in air quality improvements due to reduced HGV traffic caused by the scheme (Appendix 9.10).

"In all cases the Secretary of State must take account of relevant statutory air quality thresholds set out in domestic and European legislation"

11. The AQ ES chapter has taken account of statutory air quality thresholds set out in the Air Quality Regulations 2000 (Ref: 9.6) and (Amendment) Regulations 2002 (Ref: 9.7) for the purpose of Local Air Quality Management (LAQM). The results of the assessment, in terms of the relevant air quality standards and objectives, are summarised in paras 9.5.164-169 and in Table 9.35.

12. The AQ ES chapter has also taken account of the EU limit values in Directive 2008/50/EC and its amendments. The results of the assessment in terms of compliance with the EU limit values are discussed in paras 9.5.177-181.

13. The threshold of principal concern that has been assessed in the AQ ES chapter in relation to domestic and EU thresholds is that for annual mean concentrations of NO_2 - with the threshold being 40 $\mu g.m^{-3}$. This is because it is exceedance of this threshold that has resulted in the declaration of all of Northampton Borough Council's Air Quality Management Areas following the (domestic) LAQM process - other air quality pollutants and averaging periods being considered less critical.

"Where a project is likely to lead to a breach of the air quality thresholds, the applicant should work with the relevant authorities to secure appropriate mitigation measures with a view to ensuring so far as possible that those thresholds are not breached"

14. The project will not lead to a breach of the relevant air quality thresholds (see paragraph 8 above).

15. In terms of impacts within the Northampton AQMAs with regard to the annual mean standard discussed above at points 12 and 13, there will be some small increases in NO_2 concentrations at some sensitive receptor locations. However, as shown in Table 9.35, these will mostly be of negligible significance; although slight adverse impacts are predicted within AQMA No.4 in 2021, which become negligible by 2031.

16. However, it has been agreed with Northampton Borough Council (page 2 of meeting notes from 13/02/18 in Appendix 9.5) that these slight adverse impacts will not hinder the effective implementation of the Borough's Low Emissions Strategy. In this regard, Northampton Borough Council has agreed with the conclusions of the AQ ES chapter. Therefore, although slight exceedance of the air quality standard will continue in AQMA No.4 after 2021, overall the secured mitigation measures will allow appropriate air quality improvements in this and the other Northampton AQMAs.

17. In terms of the EU Limit Values, as discussed in paras 9.5.177-181, the scheme will not affect the ability of the East Midlands Zone to come into compliance or to delay its compliance, which will remain dependent on air quality improving in the more polluted city of Derby and, to some extent, Nottingham.

Para 5.11

"Air quality considerations are likely to be particularly relevant where schemes are proposed:

- ***Within or adjacent to Air Quality Management Areas (AQMAs); roads identified as being above Limit Values or nature conservation sites (including Natura 2000 sites and SSSI's, including those outside England; and***

- ***Where changes are sufficient to bring about the need for a new AQMA or change the size of an existing AQMA; or bring about changes to exceedances of the Limit Values, or where they may have the potential to impact on nature conservation sites.***

18. The AQ ES chapter has acknowledged the relevance of the scheme impacts on nearby AQMAs in Northampton. These have been considered and assessed, and a summary of results provided in paras 9.5.164-169 and in Table 9.35. From these results, the conclusions at para 9.9.16 state that *"the Proposed Development will meet the requirements of the NPSNN and as such, air quality effects do not represent a barrier to the planning process".*

19. The AQ ES chapter has acknowledged the relevance and effects on nature conservation sites, these are discussed in paras 9.3.59-63. The conclusion being that due to there being no relevant sensitive habitat at these sites, there was no

need to undertake further, more detailed air quality assessment. The Ecology and Nature Conservation Chapter (Chapter 5) also considered the dust issues related to the construction and operational phases of the Proposed Development.

20. The AQ ES chapter has also acknowledged and assessed the effect of the scheme on the A45, which is identified in the UK Air Quality Plan as being a road where the EU limit value for annual mean NO_2 concentrations is at potential risk of exceedance. This is assessed in paras 9.5.177-181, with the conclusion at para 9.5.181 being *"The location and zone will, therefore, continue to be in compliance with both the UK National Plan and EU objectives"*.

21. The AQ ES chapter has not found any need for any new AQMAs to be declared or for any changes to be made to any existing AQMAs or for there to be brought about any changes to expected compliance with the relevant EU limit values.

Para 5.12

"The Secretary of State must give air quality considerations substantial weight where, after taking into account mitigation, a project would lead to a significant air quality impact in relation to EIA and/or where they lead to a deterioration in air quality in a zone/agglomeration"

22. The AQ ES chapter shows that the scheme does not lead to an overall significant air quality impact in relation to EIA regulations or to a deterioration in air quality in the East Midlands zone where the EU limit values apply as explained in paragraphs 15 and 17 of this note

23. The results summarised in Table 9.35 show that the greatest impacts are slight adverse increases in annual mean NO_2 concentrations in AQMA No.4, Kingsthorpe, which is shown on Figure 9.8. However, at para 9.5.168 it is stated that by 2031, which is the earliest the scheme would become fully operational, *"the impact in AQMA No4 is predicted to become overall Negligible in the interim due to further re-distribution of traffic flows."*.

24. With regard to the scheme causing a deterioration in air quality in the East Midlands zone, paras 9.5.177-181 discuss the results of the assessment in relation to the EU limit values, with the conclusion stated at para 9.5.181 being that *"The location and zone will, therefore, continue to be in compliance with both the UK National Plan and EU objectives."*.

25. At para 9.9.16 it is stated that *"… the Proposed Development will meet the requirements of the NPSNN and as such, air quality effects do not represent a barrier to the planning process*". This is the case without the specific mitigation measures to reduce emissions from road traffic that will form part of Northampton Borough Council's Low Emissions Strategy. Funds for supporting this strategy will be provided by way of a committed payment of £250,000 made by the Applicant to the Borough Council.

Para 5.13

"The Secretary of State should refuse consent where, after taking into account mitigation, the air quality impacts of the scheme will:

- ***Result in a zone/agglomeration which is currently reported as being compliant with the Air Quality Directive becoming non-compliant; or***

- ***Affect the ability of a non-compliant area to achieve compliance within the most recent timescales reported to the European Commission at the time of the decision***

26. The scheme is located within a zone that is currently non-compliant (East Midlands zone). The scheme was assessed and it does not cause a continuance of non-compliance nor delay the future compliance of the zone within the most recent timescales reported to the European Commission. It also does not cause a currently compliant zone/agglomeration to become non-compliant.

27. Para 9.3.47 of the AQ ES chapter states that *"The A45 was identified in the UK Air Quality Plan as being the only location predicted to be non- compliant within the NBC authority area in 2019. This location has been predicted to become compliant after 2019. This is dependent on the implementation of Clean Air Zones (CAZ) in nearby Derby and Nottingham as well as expected emissions reductions predicted to occur through other "additional measures" including the Northampton Air Quality Action Plan and other authorities across the East Midlands zone.".*

28. The AQ ES chapter has determined at para 9.5.180-181 that "*The results show that the Proposed Development is predicted to increase annual mean NO_2 concentrations by 0.8µg.m^{-3} at the A45 location. The total concentration 'With Development', in 2021, is predicted to be 36.8µg.m^{-3}, which is below the EU LV of 40µg.m^{-3}. The location and zone will, therefore, continue to be in compliance with both the UK National Plan and EU objectives."*

29. It is important to note that the Proposed Development does not rely on specific mitigation measures such as the Framework Travel Plan nor the Northampton Borough Council's Low Emissions Strategy to maintain compliance. Any improvements in air quality generated by those measures has not been relied upon nor assumed in the assessment – also see below.

30. The scheme will not, therefore, affect the ability of the zone to become compliant within the appropriate timescales, and fully meets the tests set by the NPSNN.

Mitigation

Para 5.14

> ***"The Secretary of State should consider whether mitigation measures put forward by the applicant are acceptable. A management plan may help codify mitigation at this stage. The proposed mitigation measures should ensure that the net impact of a project does not delay the point at which a zone will meet compliance timescales.***

Para 5.15

> ***"Mitigation measures may affect the project design, layout, construction, operation and/or may comprise measures to improve air quality in pollution hotspots beyond the immediate locality of the scheme. Measures could include, but are not limited to, changes to the route of the new scheme, changes to the proximity of vehicles to local receptors in the existing route, physical means including barriers to tap or better disperse emissions, and***

speed control. The implementation of mitigation measures may require working with partners to support their delivery.

31. Mitigation beyond what is intrinsic to the Proposed Development (i.e. improvements to the highways infrastructure and associated improvements to traffic flows) is not necessary to ensure the project does not delay the compliance timescales for the EU limit values. However, para 9.6.6 of the ES Chapter outlines the Framework Travel Plan and Public Transport Strategy, which will further mitigate road transport emissions from the scheme through reducing reliance on the private car.

32. Significantly, as stated in para 9.6.7, the Proposed Development is itself part of the Government's national strategy to reduce air pollution (and carbon emissions) by taking freight off the roads and putting it onto rail. In this regard, para 9.6.8 states that *"these beneficial impacts will be seen across a wide area, including within other AQMAs on the strategic road network and within the East Midlands zone"*.

33. It should be noted that the AQ ES chapter did not model the likely effects of any specific measures outlined in the Framework Travel Plan and Low Emission Strategy. The Highways Authority specifically required the transport modelling to be undertaken without any allowance (reduction) for such measures to reduce car based travel, ensuring a robust assessment.

34. However, a range of sustainable transport measures would be secured through Requirements and the Section 106 (S106) agreement:

- Requirement 4 refers to Sustainable Transport, including actions relating to agreement of occupier specific travel plans, implementation of the Public Transport Strategy and creation of a Sustainable Transport Working Group;

- Requirement 8 (detailed design) explicitly requires details of the electric charging points; a minimum of 5% parking spaces to be provided with installed charge points, plus passive (charge point ready) provision for a further 5% parking space, as well as the location of car sharing dedicated spaces at 8% of the total;

- Requirement 12 refers to the CEMP (construction) measures with regard to dust and air; and

35. The S106 includes an agreed payment to aid implementation of the Northampton Borough Council Low Emission Strategy, and reflects the potential for short-term (2021 and the interim period) impacts on AQMA 4.

Appendix 3

ExQ2.1 Series – Revised Air Quality ES Chapter (Tracked)

9. AIR QUALITY

9.1 INTRODUCTION

9.1.1 This chapter summarises the assessment work carried out on the proposed 'Northampton Gateway' project with respect to air quality.

9.1.2 The Main Site consists of the strategic rail freight interchange (SRFI) ~~and~~ with access from the A508. The total area of the Main Site is approximately 225ha. The Proposed Development is described in detail in Chapter 2 and also consists of other elements including a Roade Bypass and other highway mitigation works, including:

- A substantial upgrade to M1 J15
- Improvements to the A45 north of M1 Junction 15;
- M1 J15A improvements;
- A508 route upgrade – works at a number of small sites, including:
  - Courteenhall Road junction improvement;
  - Rookery Lane / Ashton Road junction improvement;
  - Pury Road junction improvement; and
  - Knock Lane / Stoke Road junction improvement.

9.1.3 The Main Site itself is predominantly under arable agricultural use at present. There are urban areas on the outskirts of Northampton to the north and east of the Main Site, including Grange Park and Collingtree village. Agricultural uses predominate the land in all other directions, with the M1 and strategic rail infrastructure also very apparent in the landscape surrounding the Main Site. The location of the Main Site is included on Figure 9.1.

9.1.4 With respect to air quality, the main existing pollution sources are vehicles travelling on the local and national road network.

9.1.5 The proposals include the construction of a bypass for the village of Roade, to the south of the Main Site. One objective of the bypass is to remove the A508 through-traffic from the village centre. The potential for predominantly beneficial local air quality impacts is described in later sections of this Chapter. The alignment of the corridor for the bypass is included on Figure 9.2.

9.1.6 A number of air quality management areas (AQMAs) have been declared in the area as a result of elevated concentrations of nitrogen dioxide (NO_2). These include Northampton Borough Council's AQMAs No.1, No.2, No.3, No.4, No.5, No.6 and No.8 and South Northamptonshire Council's Towcester AQMA.

9.1.7 The assessment of air quality for the Proposed Development focuses on the potential for traffic generation to affect pollution concentrations at sensitive receptor locations in the local area, including the above AQMAs. However, it also considers effects at a regional and national level, as is required for a Nationally Significant Infrastructure Project (NSIP).

9.2 RELEVANT POLICY

9.2.1 A summary of the key legislation that is applicable to the air quality assessment for the Proposed Development is provided below.

National Policy Statement for National Networks (NPSNN)

9.2.2 The NPSNN provides policy guidance (Ref: 9.1) regarding Nationally Significant Infrastructure Projects (NSIPs) on the national networks, including the assessment of environmental impacts.

9.2.3 With regard to air quality, the NPSNN sets out what the Environmental Statement should describe and this is taken into account in this Air Quality chapter of the ES.

9.2.4 The NPSNN also refers to some of the key considerations when assessing impact on air quality, with an emphasis on local authority AQMAs and UK Air Quality Plan zones (e.g. the East Midlands) (Ref: 9.2), and also identifies some of the key mitigation measures which may be considered:

"5.12 The Secretary of State must give air quality considerations substantial weight where, after taking into account mitigation, a project would lead to a significant air quality impact in relation to EIA and / or where they lead to a deterioration in air quality in a zone/agglomeration.

5.13 The Secretary of State should refuse consent where, after taking into account mitigation, the air quality impacts of the scheme will:

- *result in a zone/agglomeration which is currently reported as being compliant with the Air Quality Directive becoming non-compliant; or*
- *affect the ability of a non-compliant area to achieve compliance within the most recent timescales reported to the European Commission at the time of the decision"*

9.2.5 It should be noted that there are currently few zones that are compliant with the EU Air Quality Directive. The 'East Midlands' zone in which the Proposed Development is located is currently non-compliant, with exceedances of the annual mean Air Quality Standard (AQS) for NO_2 recorded at a number of locations, particularly in major urban areas. The UK government has mandated Clean Air Zones (CAZ) be implemented in five cities to deliver compliance in the shortest practicable time. The five mandated CAZ cities include Derby which is in the East Midlands zone. The UK government has also identified an additional thirty-three other authorities across the UK that are required to undertake additional measures to improve air quality to achieve compliance in the shortest practicable time. Northampton was not identified as one of these authorities requiring additional measures, reflecting the overall baseline position of generally good air quality as set out later in this Chapter.

9.2.6 With respect to mitigation, the NPSNN states:

"5.14 The Secretary of State should consider whether mitigation measures put forward by the applicant are acceptable. A management plan may help codify mitigation at this stage. The proposed mitigation measures should ensure that the net impact of a project does not delay the point at which a zone will meet compliance timescales.

5.15 Mitigation measures may affect the project design, layout, construction, operation and/or may comprise measures to improve air quality in pollution hotspots beyond the immediate locality of the scheme. Measures could include, but are not limited to, changes to the route of the new scheme, changes to the proximity of vehicles to local receptors in the existing route, physical means including barriers to trap or better disperse emissions, and speed control. The implementation of mitigation measures may require working with partners to support their delivery."

9.2.7 The NPSNN also sets out:

- the need for development of road, rail and strategic rail freight interchange projects on the national networks; and
- the policy against which decisions on major road and rail projects will be made.

9.2.8 In paragraph 2.29, the NPSNN identifies goals and objectives for the railway in the context of the Government's overall vision for the transport system, stating that the railway must provide for the movement of freight across the country including "*to and from ports*" to support "*environmental goals and improve quality of life".* Explicit references to the roles of SRFIs are also made in this context of delivering environmental as well as economic and social outcomes, and balancing a range of potential impacts and effects:

"2.44 The aim of a strategic rail freight interchange (SRFI) is to optimise the use of rail in the freight journey by maximising rail trunk haul and minimising some elements of the secondary distribution leg by road, through co-location of other distribution and freight activities. SRFIs are a key element in reducing the cost to users of moving freight by rail and are important in facilitating the transfer of freight from road to rail, thereby reducing trip mileage of freight movements on both the national and local road networks.

2.45 This requires the logistics industry to develop new facilities that need to be located alongside the major rail routes, close to major trunk roads as well as near to the conurbations that consume the goods. […]

2.51 The environmental advantages of rail freight have already been noted at paragraph 2.40 and 2.41. Nevertheless, for developments such as SRFIs, it is likely that there will be local impacts in terms of land use and increased road and rail movements, and it is important for the environmental impacts at these locations to be minimised. […]

3.4 The Appraisal of Sustainability accompanying this NPS recognises that some developments will have some adverse local impacts on noise, emissions, landscape/visual amenity, biodiversity, cultural heritage and water resources. The significance of these effects and the effectiveness of mitigation is uncertain at the strategic and non-locationally specific level of this NPS. Therefore, whilst applicants should deliver developments in accordance with Government policy and in an environmentally sensitive way, including considering opportunities to deliver environmental benefits, some adverse local effects of development may remain."

9.2.9 As such, it is recognised that adverse local environmental impacts may remain following mitigation and therefore, a holistic view of more regional, or national, impacts is required in assessing an NSIP project.

National Planning Policy Framework (NPPF)

9.2.10 The NPPF, which was published in March 2012 (Ref: 9.3), sets out the Government's planning policy for England. At its heart is an intention to promote more sustainable development. A core principle in the NPPF that relates to air quality effects from development is that planning should *"contribute to conserving and enhancing the natural environment and reduce pollution"*. In achieving this, it states in paragraph 109 that:

"The planning system should contribute to and enhance the natural and local environment by: […]

preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability […]".

9.2.11 With regard to assessing cumulative effects the NPPF states the following at paragraph 120:

"To prevent unacceptable risks from pollution and land instability, planning policies and decisions should ensure that new development is appropriate for its location. The effects (including cumulative effects) of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or Proposed Development to adverse effects from pollution, should be taken into account".

9.2.12 The NPPF offers a broad framework, but does not afford a detailed methodology for assessments. Specific guidance for air quality continues to be provided by organisations such as the Department for Environment, Food and Rural Affairs (Defra), Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM).

Planning Practice Guidance

9.2.13 The Planning Practice Guidance (PPG) on Air Quality (Ref: 9.4), which was updated in March 2014, provides guiding principles on how planning can take account of the impact of new development on air quality. This Air Quality PPG is the relevant guidance under the National Planning Policy Framework which summarises the importance of air quality in planning and the key legislation relating to it.

9.2.14 As well as describing the importance of International, National and Local Policies (detailed elsewhere in this report), it summarises the key sources of air quality information. It also explains when air quality is likely to be relevant to a planning decision:

"Whether or not air quality is relevant to a planning decision will depend on the Proposed Development and its location. Concerns could arise if the development is likely to generate air quality impact in an area where air quality is known to be poor. They could also arise where the development is likely to adversely impact upon the implementation of air quality strategies and action plans and/or, in particular, lead to a breach of EU legislation (including that applicable to wildlife) […]

When deciding whether air quality is relevant to a planning application, considerations could include 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 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 unacceptable impact (such as dust) during construction for nearby sensitive locations.*
- *Affect biodiversity. In particular, this is likely to result in deposition or concentration of pollutants that significantly affect a European-designated wildlife site, and is not directly connected with or necessary to the management of the site, or does it otherwise affect biodiversity, particularly designated wildlife sites."*

The UK Air Quality Strategy

9.2.15 The UK Air Quality Strategy (UKAQS) (Ref: 9.5) sets the required "standard" concentrations that are to be achieved at sensitive receptor locations across the UK by various "objective" dates. The sensitive locations at which the standards and objectives apply are places where the population is expected to be exposed to the various pollutants over the particular averaging period. Thus, for those objectives to which an annual mean standard applies, the most common sensitive receptor locations used to measure concentrations against the set standards are areas of residential housing, since it is reasonable to expect that people living in their homes could be exposed to pollutants over the relevant averaging period. For shorter averaging periods of between 15 minutes, 1 hour or 1 day, the sensitive receptor location can be anywhere where the public could be exposed to the pollutant over these shorter periods of time.

9.2.16 The objectives adopted in the UK are based on the Air Quality Regulations 2000 (Ref: 9.6) and (Amendment) Regulations 2002 (Ref: 9.7) for the purpose of Local Air Quality Management (LAQM). These Air Quality Regulations have ~~been~~ adopted into UK law the limit values required by European Union Daughter Directives on air quality.

9.2.17 Obligations under the Environment Act 1995 require local authorities to declare an AQMA at sensitive receptor locations where an objective concentration has been predicted to be exceeded. In setting an AQMA, the local authority must then formulate an Air Quality Action Plan (AQAP) to seek to reduce pollution concentrations to values below the objective levels.

9.2.18 Northampton Borough Council (NBC) is required to publish annual air quality review and assessment reports under the LAQM regime and through this process have identified and declared seven AQMAs within the borough. These AQMAs were declared due to breaches of the annual AQS for NO_2 at the following locations:

- AQMA 1: M1
- AQMA 2: Victoria Promenade (City Centre)
- AQMA 3: St James/Weedon Rd (City Centre)
- AQMA 4: Kingsthorpe Grove/Harborough Rd (City Centre)
- AQMA 5: A45 Wootton
- AQMA 6: Campbell Square/Grafton Street (City Centre)
- AQMA 8: St Michael's Road (City Centre)

9.2.19 South Northamptonshire Council (SNC) has also declared one AQMA due to breaches of the annual AQS for NO_2 in Towcester. This AQMA is 7km to the south of the Main Site.

UK Air Quality Plan

9.2.20 The latest UK Government Air Quality Plan for nitrogen dioxide (NO_2) in the UK (2017) was published in July 2017 (Ref: 9:2). It is consistent with the NPSNN regarding the role of ~~SFRI~~SRFI projects and contains some key points of relevance, as follows:

"Investment in the national and local road network

194. Traffic speed and flow can impact on NO_x emissions, which are typically higher when an engine is under higher loads, such as during acceleration. Infrastructure schemes to tackle road congestion, which reduce stop-start traffic and thus acceleration events can also have air quality benefits.

195. In the 2016 Autumn Statement, the UK Government announced new funding (Annex A) to relieve road congestion, including additional investment to tackle key pinch-points on the strategic road network (motorways and major A roads) in England.

197.Through the Road Investment Strategy (74) the UK Government has allocated a ring fenced £100 million for an Air Quality Fund available through to 2021 for Highways England to improve air quality on its network, to meet the dual vision of the Strategy of not only protecting the environment but also improving it, including air quality."

9.2.21 The Air Quality Plan identified and has required identified local authorities to set out their initial plans for "delivering cleaner air in the shortest time possible" by July 2018.

Local Planning Policies

9.2.22 The West Northamptonshire Joint Core Strategy (WNJCS) (Ref: 9.8) was adopted in December 2014 and forms a key part of the Local Development Framework. The Joint Core Strategy contains a number of specific policies of relevance to air quality, including Policy S10 (Sustainable Development Principles), and Policy BN9 (Planning for Pollution Control). Throughout the document there is a theme of seeking to improve, rather than just maintain the existing air quality in the area:

"*Policy BN9 – Planning for pollution control* […]

Development that is likely to cause pollution, either individually or cumulatively, will only be permitted if measures can be implemented to minimise pollution to a level which provides a high standard of protection for health and environmental quality."

"*Policy S10 Sustainable Development Principles* […]

Development will […]

Minimise pollution from noise, air and run off."

9.2.23 Also relevant are a number of saved policies from the South Northamptonshire Local Plan (1997) (Ref: 9.9), which states in Policy G3 that planning permission will normally be granted where the development:

"Will not unacceptably harm the amenities of any neighbouring properties;

Is neither of a hazardous nature nor likely to cause problems of pollution, noise, vibration, smell, smoke, discharge or fumes"

9.2.24 The NBC Planning Obligations Strategy SPD (Ref: 9.10) states that where air quality impacts cannot be mitigated through planning conditions, the council will *"seek the provision of appropriate and mitigating and offsetting measures*".

9.2.25 The Northampton Low Emissions Strategy (NLES) (Ref: 9.11) was adopted in full by NBC Council in February 2018. It has been developed through collaboration between NBC and Northamptonshire County Council. It is aimed at helping the planning authority to deliver air quality objectives that are in line with Local Plan policies. It will help to inform other strategies including the Local Transport Plan and will include technical guidance, mitigation and an air pollution emissions cost calculator. Parts of the NLES relevant to the scheme include:

"14 Theme 3 – Reducing Vehicle Emissions: Commercial Vehicles & Freight […]

14.1 Northamptonshire is a prime location for the distribution of goods – many distribution centres and logistics operators are located within the region, with the freight & logistics sector being a major contributor to the region's economy. Road freight is the most used mode for freight movements in Northampton.

Heavy and light goods vehicles are a significant contributor to elevated pollution concentrations in the urban centre and along arterial routes. […]

14.2 Freight and commercial activity is potentially one of the most difficult for the Borough to directly influence, given that decisions in relation to the procurement of fleet vehicles is entirely a commercial decision. However, commercial organisations are required to report on CO_2 emissions and are encouraged to reduce their emissions, and from this we will seek to support from commercial operators to reduce transport emissions.

14.3 Examples of what can be done include:

- Seeking opportunities to increase the take-up of alternative fuels and technologies by HGV and LGV operators, for example natural and bio gas refuelling stations could be supported at key locations near to the strategic road network (possibly in conjunction with bus operators).
- Working with commercial fleet operators to use whole-life costing during vehicle procurement to promote the economic as well as environmental and health benefits from low emission HGVs and LGVs.
- Using the Northampton Air Quality & Planning Technical Guide (see Theme 2 – Creating a Low Emission Future) to ensure that new commercial developments incorporate facilities for low emissions vehicles, such as electric charging points and minimum Euro emission standards for fleet vehicles.
- Encourage more freight to be transported by rail for long-haul journeys.

- Using sustainable procurement criteria to reward those businesses which have a lesser impact on the environment.
- Minimising emissions in urban areas from HGVs and LGVs – the so-called "last mile" of deliveries – for example through the use of freight consolidation centres and consideration of Low Emission Service Delivery Plans."

9.2.26 Northamptonshire Transportation Plan (Ref: 9.12) sets out the overarching strategic aims for Transportation in Northamptonshire. Strategic Policy 22 is focused on how the impact of transport on the local environment can be reduced:

"Strategic Policy 22 […]

We will seek to reduce the impact that motor vehicles have on the local environment in Northamptonshire by minimising the effects of severance, noise and the emissions from transport.

This Strategy will lead to a number of transport related proposals and all of these projects will be subjected to Environmental Impact Assessment where appropriate. However this strategy sets out the following principles that will guide future developments:

- There should be a net gain in biodiversity value – there is also an opportunity to contribute towards biodiversity goals set out in the Northamptonshire Arc policy document; […]
- Design of new infrastructure and maintenance of existing infrastructure should protect and enhance the natural environment […]
- Any proposals that would significantly harm a European site would not be supported by the Strategy. […]
- All new development should be 'air quality neutral.'

9.3 ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA

Guidance

9.3.1

9.3.2 Defra Technical Guidance LAQM.TG16 (Ref: 9.13) updated in 2018 has been followed in carrying out this air quality assessment. Guidance published by the IAQM (Ref: 9.14) on the 'Assessment of Dust from Demolition and Construction' has been used when assessing the construction phase of the Proposed Development. The Greater London Authority's supplementary planning guidance

9.3.2 (Ref: 9.15) for the control of dust from construction has also been referred to. Whilst produced for development in London, it is seen as a high standard for developments across the UK. It suggests a number of mitigation measures that should be adopted to minimise impacts of dusts and fine particles.

9.3.3 The latest Environmental Protection UK (EPUK) & IAQM guidance, updated in January 2017 on 'Planning for Air Quality' (Ref: 9.16) has also been followed in assessing air quality at the sites and is particularly important for determining the significance of effects at each stage. These significance criteria are included in Appendix 9.1.

9.3.4 The Streamlined PCM Technical Report (Ref: 9.17) has been followed when assessing the Proposed Development against the UK's Air Quality Plan and the EU Directive 2008/50/EC and its amendments.

9.3.5 The DMRB Volume 11, Section 3, Part 1 has been referred to in the assessment of regional impacts (Ref: 9.18).

Assessment Methodology

Construction Phase

Dust

9.3.6 The construction phase of the Proposed Development will involve a number of activities that could produce polluting emissions to air. Predominantly, these will be emissions of dust. However, they could also include releases of odours and/or more harmful gases and particles. The IAQM's guidance ~~to~~ on assessing the impacts of construction on human and ecological receptors has been followed in carrying out the air quality assessment.

9.3.7 The guidance suggests that where a human receptor is located within 350m of a site boundary and/or within 50m of a route used by construction vehicles, up to 500m from the site entrance, there is the potential for significant dust impacts. Figures 9.1, 9.2, 9.3 and 9.4 show the location of receptors that could be sensitive to dust that are located within 350m of the boundaries of the Proposed Development.

9.3.8 When considering ecological receptors, impacts can be considered *Negligible* when receptors are located over 50m from the site boundary and/or over 50m of a route used by construction vehicles, up to 500m from the site entrance.

9.3.9 Review of Defra's Multi Agency Geographic Information for the Countryside (MAGIC) website (www.magic. gov.uk), which incorporates Natural England's interactive maps, has identified no statutory ecologically sensitive receptors within 50m of the Main Site or junction improvement locations. Although the location of the site entrances are not yet known, there are no statutory ecological receptors within 50m of any road potentially used by construction vehicles within 500m of the Proposed Development.

9.3.10 It is noted that the Roade Cutting Site of Special Scientific Interest (SSSI) is located within 50m of the proposed Roade bypass; however, this SSSI has been designated for its geological, rather than ecological, importance.

9.3.11 Therefore, the Proposed Development will have a *Negligible* impact on statutory ecological receptors, in terms of dust emissions, and this will not be considered further within this assessment. Non-statutory ecological receptors would be of very low sensitivity and are therefore not considered. Note that the ecological assessment is included in Chapter 6.

Vehicle emissions (Construction)

9.3.12 Being a large site, emissions from construction phase vehicle movements also have the potential to affect local air quality. The volume of construction traffic will vary throughout the course of the construction phase. It is anticipated that this will be front loaded, with the largest number of vehicle movements expected in years one and two. No heavy construction vehicles will be permitted to use the A508 to the south of the Main Site and delivery vehicles would be routed via the principal and strategic road network (M1 & A45) to avoid effects on local residential areas.

9.3.13 AQMA 1 and AQMA 5 are, however, situated on the M1 and A45, respectively, and the increase in the total number of daily HGV movements at these locations is expected to exceed the IAQM threshold for assessment (i.e. >25 HGV AADT). As such, an assessment of construction phase traffic has been undertaken on the A45 and M1.

9.3.14 The increase in construction related HG~~D~~V and LG~~D~~V flows were assessed in 2021, using the 'without development' scenario as a future baseline. Full details of the construction phase vehicle emission assessment are included in Appendix 9.11.

Operational Phase

Dust

9.3.15 There are plans for an Aggregates Terminal to be relocated from centre of Northampton to the Main Site. As shown in Figure 9.5, there are human receptors within 350m of the aggregate terminal and as such, there is the potential for operational dust impacts from this source.

9.3.16 An assessment of operational dust impacts will, therefore, be undertaken.

Vehicle emissions

9.3.17 In order to determine the effects on local air pollution concentrations from the operation of the Proposed Development, emissions from roads have been assessed using a detailed air dispersion model. The modelling has used the ADMS-Roads model (version 4.1.1), which is produced by CERC and has been validated and approved by Defra for use as an assessment tool for calculating the dispersion of pollutants from traffic on UK roads. The assessment has been based on the detailed traffic data that underpins the Transport Assessment.

9.3.18 The most likely locations for significant impacts (both adverse and beneficial) have been identified and are listed in Table 9.1, below. The selection of these study areas has been based on both anticipated changes to vehicle movements and existing air quality.

Table 9.1: Operational Phase Assessment Study Areas

Study Area	AQMAs	Relevant Local Authorities	Relevant Figure
Collingtree and Northampton South Sustainable Urban Extension (NSSUE)	Northampton AQMA No.1	Northampton Borough Council	Figure 9.6
Northampton (Wootton)	Northampton AQMA No.5	Northampton Borough Council	Figure 9.7
Harborough Road, Kingsthorpe	Northampton AQMA No.4	Northampton Borough Council	Figures 9.8
Victoria Promenade	Northampton AQMA No.2	Northampton Borough Council	Figures 9.9
Campbell Square	Northampton AQMA No.6	Northampton Borough Council	Figures 9.10
St Michaels Road	Northampton AQMA No.8	Northampton Borough Council	Figures 9.11
St James/Weedon Road	Northampton AQMA No.3	Northampton Borough Council	Figures 9.12
Roade and West Lodge Cottages	N/A	South Northamptonshire District Council	Figure 9.13
Blisworth and Milton Malsor	N/A	South Northamptonshire District Council	Figure 9.14
Towcester	Towcester AQMA	South Northamptonshire District Council	Figure 9.15
Hartwell	N/A	South Northamptonshire District Council	Figure 9.16
Grafton Regis & Potterspury	N/A	South Northamptonshire District Council	Figure 9.17

9.3.19 The Proposed Development is anticipated to remove more than 100 daily HGV movements, resulting in improvements to air quality, through at least 57 AQMAs (Listed in Appendix 9.10) on routes to major towns and cities, as well as key Ports, by 2031, reflecting the role of SRFIs in serving national and international supply chains and markets.

9.3.20 The impact of the proposed development would likely be considered *Negligible,* with reference to the IAQM impact descriptors, at each of these 57 AQMA as the reductions in HGV flows are very small when compared to the baseline Annual Average Daily Traffic (AADT) flows for these key roads, which are generally in excess of 40,000 daily vehicles.

9.3.21 However, this wider effect across a large geographic area is one of the objectives of the national policy of encouraging a shift from road to rail, and the cumulative effects of increasing modal shift, including that enabled by increasing the network of SRFIs, would clearly become more significant nationally with time.

9.3.22 Detailed, hourly sequential meteorological data are used by the model to determine pollutant dispersion and levels of dilution by the wind and vertical air movements. Meteorological data used in the model for the local study areas have been obtained from Bedford meteorological station as it is considered to provide the most representative data of similar conditions to the application site and surrounding area. Meteorological data from 2015 and 2016 have been used, dependant on which data relevant to that particular study area were available for verification.

9.3.23 The surface roughness applied to the model for the meteorological station and site was 0.5m for most study areas, which is typically used for “open suburbia”. Full details of model inputs are available in Appendix 9.2.

9.3.24 Modelled receptor locations are shown in the Figures listed in Table 9.1. Discrete model receptors were positioned at the façades of existing residential dwellings and other receptors closest to the main pollution sources. These are considered worst-case locations, as pollutant concentrations would be expected to reduce with distance from the roads. All of the receptors were modelled at the “breathing height” which is, by convention, 1.5m above ground unless otherwise specified.

9.3.25 ES traffic data in the form of AADT and Annual Average Weekday Traffic (AAWT) flows have been provided by WSP from the Northamptonshire Strategic Transport Model (NSTM2), which they maintain and operate on the behalf of Northamptonshire County Council (NCC). WSP has produced the ES traffic data in accordance with their standard methodology for this process. This involves the use of peak period to AADT and AAWT conversion factors, which are applied across the whole of the NSTM2 modelled area. The model includes all of the committed developments associated with the Joint Core Strategy, including all of the Sustainable Urban Extensions and other growth planned over the plan-period; as such, the assessment of cumulative impacts are included in the main body of the assessment and cannot be separated out.

9.3.26 The following scenarios were modelled for local areas:

- Model verification – the most recent relevant monitoring data, at the time of writing, for each study area;
- 2018 baseline year;
- 2021 (opening year), without development (B1);
- 2021 (opening year), with development (H1);
- 2031 (assumed full operation year), without development (D1);
- 2031 (assumed full operation year), with development (J1d); and
- 2031 (assumed full operation year), with development and proposed ‘Rail Central’ development (J3).

9.3.27 Full details of the modelled traffic data are included in Appendix 9.2.

9.3.28 Emissions factors were derived from the latest Defra Emissions Factor Toolkit (EFT) (V8.0.1 December 2017). The updated EFT projects that vehicle NO_x emissions will decline with advances in engine technology, tightening emissions control systems on new vehicles and the predicted phasing out of older, higher emitting vehicles in future years.

9.3.29 The current EFT provides the fleet emission factors up to the year 2030; as such, 2021 emissions factors were used for 2021 scenarios; however in the absence of predicted 2031 emission factors, 2030 emission factors were used for all 2031 scenarios. National modelled UK- AIR background map concentrations are projected to decline over time, and are also only available up to the year 2030; as such 2021 background concentrations were used for 2021 scenarios and 2030 background concentrations used for 2031 scenarios.

Rail Central

9.3.30 An additional transport scenario (J3) has looked at the cumulative impact of both the emerging Rail Central and Northampton Gateway developments, in the absence of a highway mitigation scheme developed specifically to accommodate both developments, in 2031. This scenario includes the following highway mitigation measures, taken from a combination of both projects:

- A Rail Central grade-separated site access junction onto the A43;
- Rail Central improvement at M1 J15A (instead of the Northampton Gateway improvement at this junction);
- Rail Central improvement at A43/Trove roundabout; and
- All Northampton Gateway highway mitigation (other than M1 J15A, which is as above).

Model Verification

9.3.31 Following guidance set out in LAQM.TG16, model results have been compared with monitoring data to determine whether they need adjusting to more accurately reflect local air quality. This process is known as verification and reduces the uncertainty associated with local effects on pollution dispersion and allows the model results to be more site-specific.

9.3.32 A separate verification study has been undertaken for each study area using monitoring data from the relevant local authority or authorities. This is with the exception of the Collingtree study area, and the assessment of receptors at West Lodge Cottages, which utilised project specific diffusion tube monitoring data instead of local authority data. Comparisons of modelled and monitored total annual mean NO_2 in each study area have been included in Appendix 9.3.

Sensitivity Analysis

9.3.33 In order to assess the sensitivity of the results to model input choices, a sensitivity analysis has been undertaken. This analysis has focused on the impact of model verification year choice on results, and has focused on the sensitive AQMAs within the NBC study areas.

9.3.34 The 2017 Annual Status Report for NBC (Ref: 9.19) notes that in regard to NO_2:

"there are increases, when comparing mean averages from 2015 to 2016 at most locations. There are no clear explanations as to why annual averages have increased in general (e.g. new development/roadworks, increase in flows/ bad year for air quality)".

9.3.35 When comparing diffusion tube data across the past five years, it appears that 2016 was the worst year in terms of air quality; as such, model verification has been based on this year. This is to ensure a conservative approach of assessment.

9.3.36 However, the verification factor (an indicator of model performance) was consistently lower (i.e. model performing better) when using 2015 traffic, monitoring and meteorological data, as opposed to 2016 data. Using 2015 data, therefore, resulted in a smaller discrepancy between real world monitoring and modelled concentrations. As such, the results for the NBC study areas are based on 2015 verification and are included in Appendix 9.4.

9.3.37 The results from this sensitivity test have been used to help ascribe an overall significance in each study area.

Model Uncertainty

9.3.38 There are a number of inherent uncertainties associated with the air quality assessment process, including:

- Model uncertainty – due to model formulations;
- Data uncertainty – due to errors/assumptions in input data, including emissions estimates, background estimates, meteorology; and
- Variability – randomness of measurements used.

9.3.39 Using a validated air quality model such as ADMS Roads, as well as undertaking the model verification takes into account much of the modelling uncertainty. This assessment includes model verification in each study area to account for the local dispersive characteristics and traffic flows.

9.3.40 The choices of the practitioner throughout the air quality assessment process are also essential to the management of uncertainty, and to whether the predicted impact tends towards a worst-case estimate or a central estimate.

9.3.41 This assessment has chosen inputs tending towards 'worst-case', where appropriate, to ensure a conservative and robust approach. For example, a limited number of receptors were chosen in each study area and these were generally the closest receptors to the roads; as such, the judgement of overall significance in each study area was based on the impacts at the worst-case locations.

9.3.42 A major uncertainty is related to the rate at which the vehicle fleet is anticipated to improve/be updated over time. In the absence of any other official stance we have assumed that the vehicle fleet will improve in line with predictions made by DEFRA. To have assumed no future improvement (i.e. tending towards worst-case) would have resulted in an unrealistic worst-case estimate, not suitable for an assessment of 'likely' significant effects.

Regional Impacts

9.3.43 The UK government has international commitments under The European Commission National Emission Ceilings Directive (NECD), and the UNECE Gothenburg Protocol, to combat transboundary air pollution through the reduction of pollutant emissions.

9.3.44 The assessment of regional impacts has followed the guidance set out in the Design Manual for Roads and Bridges Volume 11 Section 3, Part 1 (Ref: 9.18). This guidance recognises the importance of regional assessments as pollutants can travel long distances, crossing regional, national and even international boundaries. Potential wider-scale impacts include acidification, excess nitrogen deposition and generation of tropospheric ozone.

9.3.45 Estimates of NO_X and PM_{10} emission rates were provided by the latest EFT (v.8.0.1). It was assumed that the operation of the Proposed Development in 2021 will result in a reduction in 23 million HGV miles (i.e. one quarter of 92 million miles) and that the Proposed Development will come online at a steady rate between 2021 and 2031.

Compliance with the EU Air Quality Directives (East Midlands zone)

9.3.46 As an NSIP, it is anticipated that the Proposed Development will affect traffic flows not only locally, but also at various locations across the UK. NPSNN guidance refers to wider impacts within zones; therefore, the operational phase assessment has considered not only local impacts but also the impact on the UK's Air Quality Plan East Midlands zone.

9.3.47 As referred to above, the Proposed Development sits within the EU UK ambient air quality reporting zone of East Midlands. The East Midlands zone includes the counties of Derbyshire (including Derby), Leicestershire, Lincolnshire, Northamptonshire (including Northampton) and Nottinghamshire but excludes the Leicester and Nottingham urban areas (*Note: Highways England managed roads are excluded from the zone assessments*). The impact of the Proposed Development has also been assessed upon this zone to determine compliance with the UK's Air Quality Plan and the EU Directive 2008/50/EC and its amendments.

9.3.48 The A45 was identified in the UK Air Quality Plan as being the only location predicted to be non-compliant within the NBC authority area in 2019. This location has been predicted to become compliant after 2019. This is dependent on the implementation of Clean Air Zones (CAZ) in nearby Derby and Nottingham as well as expected emissions reductions predicted to occur through other "additional measures" across the East Midlands zone.

9.3.49 Without the implementation of the Derby CAZ and other measures, the A45 would not become compliant until after 2020. However, as Derby has been mandated to implement a CAZ, it is expected to be in place by 2020.

9.3.50 The A45 has therefore been assessed to determine whether the development is predicted to result in non-compliance and/or affect the ability of a non-compliant area to achieve compliance within the shortest time possible (i.e. delay compliance) with the EU Directive annual limit value (LV) for NO_2, assuming the implementation of CAZ measures.

9.3.51 In order to assess the Proposed Development's impact on LVs the assessment has used the UK Air Quality Plan model, Streamlined Pollution Climate Model (SL-PCM).

9.3.52 The SL-PCM is a tool that has been developed to quickly assess the effect that changes in fleet composition could have on emissions and specifically on the ability of Zones or Agglomerations to comply with LVs. The SL-PCM is a compact version of the full UK Air Quality Plan model, Pollution Climate Model (PCM), which can take several weeks to run.

9.3.53 Baseline traffic data used in the SL-PCM is based on DfT traffic counts, whilst traffic flows, including development traffic flows used in the air quality assessment are based on outputs from the validated NSTM2 model.

9.3.54 There are differences between the SL-PCM baseline (2021) A45 flows and the corresponding A45 flows (2021) produced from the NSTM2 model. To present a conservative (i.e. worst-case) assessment of the impact of the development on the A45, the NSTM2 development contribution traffic flows were added to the baseline SL-PCM (DfT) traffic flows. This represents the combination of highest A45 traffic flows for the assessment using the SL-PCM model.

Consultations

9.3.55 The Air Quality Officers at NBC and SNC were contacted in order to discuss the approach to the air quality assessment, as outlined in the Proposed Development Environmental Statement Scoping Report.

9.3.56 The Officers' key requirement was that the assessment should cover any roads close to residential areas where significant changes in traffic flows would likely occur. It was determined that impacts on the AQMAs within Northampton would probably be more sensitive than those likely to occur south of the Application Site in the area of SNC.

9.3.57 As NBC monitoring already covers much of the key areas in the town centre AQMAs, the location of NO_2 diffusion tube monitoring for the project-specific study included a focus on Collingtree, where limited monitoring by NBC currently takes place.

9.3.58 NBC and SNC have both provided recent air quality monitoring data, which have been included in the baseline section of this chapter.

9.3.59 Copies of meeting notes from key meetings held with the Air Quality Officers at NBC and SNC are included in Appendix 9.5.

Nitrogen Deposition

9.3.60 Review of Defra's MAGIC website which incorporates Natural England's interactive maps, has identified a number of statutory receptors, within proximity of roads that may see a significant increase in traffic flows, due to operation of the Proposed Development, these include:

- Roade Cutting (SSSI)
- Upper Nene Valley Gravel Pits (SPA)

9.3.61 Increases in traffic flows and emissions have the potential to increase rates of nitrogen deposition at these statutory receptors. However, neither is considered to be particularly sensitive to changes in nitrogen deposition rates.

9.3.62 The Roade Cutting SSSI has been designated due to geological importance. There is no citation of a sensitive plant community that could be adversely influenced by nitrogen deposition (Ref: 9.20).

9.3.63 "Standing Open Water and Water Canals", which is the main habitat type of the Upper Nene Valley Gravel Pits, are generally considered Phosphorus limited ecosystems and as such, increased nitrogen deposition is not likely to influence the trophic state of the ecosystem. Furthermore, the APIS website (Ref: 9.21), states that:

"the critical load should only be applied to oligotrophic waters with low alkalinity with no significant agricultural or other human inputs"

9.3.64 The Upper Nene Gravel Pits are located adjacent to the A45 and agricultural land-use; as such, it is not considered necessary to further assess the impact of nitrogen deposition at this receptor.

Significance Criteria: Construction

9.3.65 In the IAQM dust guidance, the first step in assessing the risk of impacts is to define the potential dust emission magnitude. This can be considered 'Negligible', 'Small', 'Medium' or 'Large' for each of the construction stages. Whilst the IAQM provides examples of criteria that may be used to assess these magnitudes, the vast number of potential variables mean that every site is different and therefore professional judgement must be applied by what the IAQM refer to as a *"technically competent assessor".* The construction phase assessment therefore relies on the experience of the appraiser.

9.3.66 As such, attempts to define precisely what constitutes a negligible, small, medium or large dust emission magnitude should be treated with caution. Factors such as the scale of the work, both in terms of size and time, the construction materials and the plant to be used must be considered.

9.3.67 The second step is to define the sensitivity of the area around the construction site. As stated in the IAQM guidance:

"7.3 the sensitivity of the area takes into ac- count a number of factors:

- the specific sensitivities of receptors in the area;
- the proximity and number of those receptors;
- in the case of PM_{10}, the local background concentrations; and
- site-specific factors, such as whether there are natural shelters, such as trees, to reduce the risk of wind-blown dust."

9.3.68 Based on these factors, the area should be categorised as being of 'Low', 'Medium' or 'High' sensitivity.

9.3.69 When dust emission magnitudes for each stage and the sensitivity of the area have been defined, the risk of dust impacts can be determined. The IAQM provides a risk of impacts matrix for each construction stage. The overall significance for the construction phase can then be judged from the construction stages assessed. Again, this is subject to professional judgement, but often the highest risk stage will predominate in influencing the overall level of risk.

9.3.70 Combustion exhaust gases from diesel-powered plant and construction vehicles accessing the application site will also be released. A construction phase traffic assessment has been undertaken and is included in Appendix 9.11. ~~Should modelling of these emissions be undertaken, th~~The significance criteria used in this assessment ~~would be~~ are the same as for the operational phase traffic assessment, as described below.

Operational

Local Study Areas

9.3.71 Guidance published by the EPUK & IAQM in 2017 (Ref: 9.16) provides impact descriptors, which are derived from the both the magnitude of change in pollution concentrations and the long term average concentrations at the receptor, with reference to the appropriate UK air quality standards. A table illustrating the operational phase impact descriptors is included in Appendix 9.1.

9.3.72 The impact descriptors described in Appendix 9.1 are intended for application at a series of individual receptors, the assessment of overall significance is, however, based on professional judgement. The reasons for reaching an overall significance should be clear and set out logically, and will take into consideration factors such as:

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

Compliance with EU Air Quality Directives (East Midlands zone)

9.3.73 The impact of the Proposed Development will only be considered significant if it results in non-compliance, or delays compliance of the East Midlands zone.

National Scale Impacts

9.3.74 The ~~Regional~~ National Scale impact assessment provides an annual figure for the reduction in NO_x and PM_{10} emissions. The significance of these figures is more difficult to ascertain as its impact could be local or trans-boundary.

9.3.75 Therefore, the assessment has considered a “damage cost approach”, based on guidance provided by Defra (Ref: 9.22). The annual reductions in emissions due to the Proposed Development have been multiplied by a “damage cost” to estimate the value of the emission reduction to society.

9.3.76 The damage cost approach is not strictly relevant to a development of national importance that seeks to achieve a strategic shift to more sustainable transport modes. However, it does illustrate how valuable the Proposed Development could be in terms of its ability to reduce air pollutant emissions on a national/regional scale.

9.3.77 Full details of the damage cost calculation are included in later sections of this Chapter (Section 9.5), and in Appendix 9.6.

9.4 BASELINE CONDITIONS

9.4.1 Defra provides estimated background concentrations of the UKAQS pollutants on the world wide web at the UK Atmospheric Information Resource (UK-AIR) website (www.airquality.co.uk). These estimates are produced using detailed modelling tools and are presented as concentrations at central 1km^2 National Grid square locations across the UK. These were updated in November 2017 and are based on monitoring data from 2015.

9.4.2 Being background concentrations, the UK-AIR data are intended to represent a homogenous mixture of all emission sources in the general area of a particular grid square location. Concentrations of pollutants at various sensitive receptor locations can, therefore, be calculated by modelling the emissions from a nearby pollution source, such as a busy road, and then adding this to the appropriate UK-AIR background datum.

9.4.3 For the Main Site in the baseline year, the assumed opening year and the assumed year of full occupation, the predicted background pollution concentrations for the two main UKAQS pollutants of interest are presented in Table 9.3. These data were taken from the central grid square location closest to the Main Site (i.e. grid reference: 475500, 254500).

Table 9.3: Background concentrations of pollutants at the Main Site from the UK-AIR (Note Table 9.2 does not exist)

Pollutant	Predicted background concentration (µg.m^{-3})			Averaging period	Air quality standard (µg.m^{-3})
	20158	2021	2030		
NO_2	18.2	13.4	9.0	annual mean	40
PM_{10}	16.6	15.9	15.6	(gravimetric) annual mean	40

***Proposed PM_{10} objectives for 2010 were dropped in the 2007 Air Quality Strategy, but are generally still referred to in the Review and Assessment process (For $PM_{2.5}$ there are no specific AQSs applicable in England, however LAQM.TG(16) states that local authorities should consider $PM_{2.5}$ as part of the LAQM process and should work towards its reduction).**

9.4.4 The data in Table 9.3 show that background annual mean concentrations of NO_2 and PM_{10} in the vicinity of the application site are predicted to be well below the annual average (40µg.m^{-3}) Air Quality Standards (AQSs), in all years of assessment.

9.4.5 Background annual mean concentrations of both NO_2 and PM_{10} are predicted to fall each year; this is partly due to the gradual replacement of the UK vehicle fleet with lower emission vehicles and general reductions in UK and other transboundary concentrations.

Local Sources of Monitoring Data

9.4.6 Monitoring at background locations is considered an appropriate source of data for the purposes of describing baseline air quality.

Automatic Monitoring

9.4.7 A summary of the most recent automatic monitoring data for NO_2 within Northampton and South Northamptonshire are presented below in Table 9.4. NBC and SNC have not undertaken any monitoring for PM_{10} in recent years as it is understood that NO_2 is the primary pollutant of concern to health.

Table 9.4: Annual Mean NO_2 Concentrations from Automatic Monitors

Site name	Site Type	Distance from Main Site (km)	Annual mean concentration (µg.m^{-3})					
			2011	2012	2013	**2014**	**2015**	**2016**
NBC								
Spring Park AURN	B	9.0	-	-	14.0	14.0	14.0	16.0
Wellingborough Road	R	5.7	36.5	35.9	32.7	-	-	-
Hermitage Way	R	1.8	36.5*	35.7	34.0	-	-	-
SNC								
Towcester Town Hall	R	7.0	22.4*	34.6	33.1	33.1	-	-

Note: AURN: Automatic Urban and Rural Network site "B" = background; "R" = roadside. *Less than 75% data capture, therefore result may be unreliable.

9.4.8 The data in Table 9.4 indicate that annual mean concentrations of NO_2 in Northampton and South Northamptonshire tend to be below the 40µg.m^{-3} AQS, even at roadside locations. The highest recorded concentration was 36.5µg.m^{-3} in 2011, at both NBC roadside monitors. This was 9% below the AQS.

9.4.9 There is no strong evidence of downward trend in NO_2 concentrations at the NBC or the SNC monitors. This is not in line with UK-AIR data presented in Table 9.3.

9.4.10 The Spring Park AURN air quality monitoring station (AQMS), classed as a background monitoring site, recorded annual mean NO_2 concentrations 60% below the AQS in 2016. This is broadly comparable to the UK-AIR data in Table 9.3. Despite being some distance away from the Proposed Development Site, this monitor is likely to be generally representative of background concentrations there, being located on the edge of the town.

Non-Automatic Monitoring

9.4.11 NBC and SNC carry out non-automatic (passive) NO_2 diffusion tube monitoring at numerous locations across their respective districts. A summary of the most recent available data is included in Table 9.5 for all background tubes and the roadside tubes closest to the Main Site.

Table 9.5: NO_2 Concentration Data from Local Diffusion Tubes

Site name	Site Type	Distance from Main Site (km)	Annual mean concentration (µg.m^{-3})				
			2012	2013	2014	2015	2016
NBC							
High St Collingtree	R	0.1	33.3	32.4	35.4	34.0	33.5
A45	R	1.3	**43.0**	**42.4**	**44.6**	**40.9**	**46.5**
Chestnut Av	R	1.5	36.7	30.2	30.3	31.6	36.6
Crematorium	R	1.5	38.8	33.3	35.3	34.1	37.2
Hermitage Way (triplicate)	R	1.9	**40.6**	36.7	38.0	38.1	**43.0**
Riverside	UB	4.3	-	21.6	21.0	18.9	24.1
Spring Park (triplicates)	UB	9.0	-	14.0	13.3	12.6	14.9
SNC							
GPKa – Saxon Av Junction	R	<0.1	32.5	28	28.3	28.2	30.3
RO1 – 40 Stratford Rd	R	2.9	24.5	22	23.1	22.5	23.8
RO2 – 16 London Rd	R	2.2	36.5	32	31.2	31.1	29.7
RO3 – 1 London Rd	R	2.5	28.3	27	27.5	26.6	26.0
RO4 – 30 High St	R	2.3	18.9	17	15.5	16.4	16.6
RO6 – A508 / Chaplin Yard	R	2.9	31.4	23	22.7	31.7	25.0

Note: "R" = roadside. "UB" = Urban Background Bold denotes exceedance of the AQS. "Data Capture <75% so result may be unreliable.

~~9.4.12~~ The diffusion tube data results presented in Table 9.5 show that annual mean NO_2 concentrations sometimes exceed the 40µg.m^{-3} AQS at busy roadside locations. The highest concentration was recorded at the A45 tube, in Northampton AQMA No.5, where a 16% exceedance of the AQS was recorded in 2016. However, it is noted that this tube is located at a roadside location, where the annual mean AQS would not apply. The annual mean AQS relates to locations where people spend long periods of time, such as residential properties, hospitals or schools (For further detail refer to paragraph 9.2.15~~410~~).

~~9.4.13~~9.4.12

9.4.13 The monitored SNC annual mean concentrations of NO_2 were consistently below the AQS in South Northamptonshire, within 3km of the site.

~~9.4.14 The SNC annual mean concentrations of NO_2 were predicted to be consistently below the AQS in South Northamptonshire, within 3km of the site.~~

~~9.4.15~~9.4.14 There are two background tubes sites within Northampton: Riverside and the Spring Park triplicate set. The Riverside tube is located towards the centre of Northampton, whilst the Spring Park triplicate set is located in the northern suburbs, co-located with the Spring Park AURN AQMS. Annual mean concentrations of NO_2 at the Riverside tube results are considerably higher than Spring Park. Between 2012 and 2016 the Riverside concentrations ranged from 47% to 61% ~~below~~ of the AQS, with Spring Park being lower at 32% to 37% ~~below~~ of the AQS.

9.4.169.4.15 It should be noted that background NO_2 concentrations at both sites showed a consistent decrease between 2012 and 2015, in line with predictions made by UK-AIR, but recorded their highest concentration in 2016. As aforementioned in paragraph 9.3.331, NBC saw a consistent but unexplained, increase in annual mean NO_2 concentrations across the town in 2016. As there
were no localised reasons for increased emissions, the 'unexplained' increase in annual mean NO_2 across the whole town could have been influenced by higher background concentrations of the pollutant. These higher background concentrations can be ~~introduced~~ influenced by meteorology through long periods of settled heat or cold weather events reducing the normal dispersion of pollutants or through the importation of trans-boundary pollution.

9.4.179.4.16 Table 9.6 below presents the background concentrations of NO_2 predicted by UK-AIR for the squares where the Riverside and Spring Park tubes are located (475000, 259500 & 476500
264500).

Table 9.6: UK-AIR background data at NBC diffusion tubes locations.

Grid Square (Tube)	Annual Mean NO_2	
	2015	2016
475000, 259500 (Riverside)	17.6	17.1
476500, 264500 (Spring Park)	13.7	13.3

9.4.189.4.17 Comparison of the Riverside and Spring Park tubes data in Table 9.5 with the UK-AIR data in Table
9.6 reveals that recorded concentrations of NO_2 are largely comparable to the predictions made by UK-AIR. A discrepancy of 7µg.m^{-3} was, however, recorded between the Riverside background tube and the predictions made by UK-AIR, in 2016.

Project Specific Diffusion Tubes

9.4.199.4.18 Given the scale of the development and the potential for impacts on receptors in nearby AQMAs, particularly at Collingtree, and following consultation with NBC, the decision was made to undertake a programme of diffusion tube monitoring at key locations around the Main Site. The diffusion tubes locations are detailed in Figures 9.6 and 9.13. Diffusion tubes were installed for 12 months at the following locations: four locations in Collingtree, to monitor emissions from the M1; one adjacent to West Lodge Cottages on the A508; and one on the Main Site, approximately 100m from the M1, as a background location.

9.4.209.4.19 The diffusion tubes were located in triplicate in order to ensure precision, and to reduce the chance of any erroneous results being included in the analysis. It is noted that most of the NBC sites use single tubes. The project tubes were in situ for 12 months, in order to collect representative annual mean concentrations (as pollution concentrations vary throughout the year, as a result of seasonal patterns in both meteorological conditions and emissions). The details of the project monitoring locations are provided in Table 9.7, with results summarised in Table 9.8. Raw results from the laboratory are included in Appendix 9.7.

Table 9.7: Project Specific Diffusion Tube Details

Location (see Figure 9.6/9.13)	Site Type	Distance from Road (m)	National Grid Reference	
			x	y
1	R	49 (M1)	475003.2	255394.3
2	R/B	91 (M1)	475025.2	255432.1
3	B	132 (M1)	475046.4	255470.9
4	R	19.5 (M1)	474931.5	255426.9
5	B	98 (M1)	474927.3	255212.5
6	R	1.5 (A508)	475272.0	253277.0

Note: "R" = roadside; "B" = background.

Table 9.8: Project Specific Diffusion Tubes – Recorded NO_2 Concentrations (2016-2017)

Month	1	2	3	4	5	6	7	8	9	10	11	12	Mean	Defra Bias Factor	Adj. MEAN
Location	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul			
Collingtree Tubes															
1	26.50	35.52	30.66	41.30	42.85	46.17	40.06	46.19	33.84	27.86	27.86	28.09	35.57	**0.92**	**32.7**
2	25.44	33.09	27.09	38.80	37.20	40.76	36.44	37.48	28.30	24.60	24.60	25.51	31.61		**29.1**
3	23.26	30.96	26.67	37.56	36.11	39.85	37.98	31.54	28.89	24.09	24.09	21.89	30.24		**27.8**
4	38.69	45.50	37.05	46.34	42.54	47.88	43.21	41.99	-	37.61	33.98	40.09	41.35		**38.0**
5	12.72	16.16	21.81	28.76	-	24.69	30.52	12.43	16.30	19.09	19.09	16.74	19.85		**18.3**
A508 Tube															
6	26.60	34.98	39.26	74.15	54.30	33.71	50.39	18.43	27.07	40.26	40.26	33.18	39.38	**0.92**	**36.2**

9.4.219.4.20 Location (Tube) 1 was co-located with NBC's High Street Collingtree tube (see Table 9.7). This allows an extra check of the method's validity by comparison with NBC's data.

9.4.229.4.21 The tubes in Collingtree show that concentrations decline rapidly with distance from the M1. At Location 4, which is approximately the same distance from the M1 as the closest dwelling, the adjusted period mean concentration is 5% below the 40µg.m^{-3} AQS.

9.4.239.4.22 Location 1 is co-located with NBC's Collingtree tube. With reference to Table 9.7, the period mean at this tube is broadly similar to the annual mean for recent years at the council's tube.

9.4.249.4.23 It is noted that the concentrations at Tube 5, to the west of the M1, are somewhat lower than those at Tube 2, which is a similar distance from the road, to the east. This is likely to be the result of pollution from the M1 being carried north-eastwards by the prevailing south-westerly wind, as well as emissions from local sources including vehicles using the High Street in Collingtree. As such, Tube 5 is thought to be most representative of true background concentrations in the vicinity.

9.4.259.4.24 The background concentration recorded at Tube 5 is directly comparable to the predictions made by UK-AIR for the Main Site.

Summary of Background/Baseline Data Used in the Assessment

9.4.269.4.25 The most appropriate annual mean background NO_2 and PM_{10} concentrations were used in this assessment (i.e. reasonably representative of the key receptors). In general, there was a good agreement between the predictions made by UK-AIR and background monitors; as such, all annual mean background concentrations of NO_2 and PM_{10} used in the assessment are from UK- AIR.

9.4.27 A gradual improvement in background concentrations has also been assumed, in line with predictions made by Defra.

9.4.26

9.5 LIKELY SIGNIFICANT EFFECTS

Construction Effects

Dust Emissions

9.5.1 A preliminary assessment of the potential risk of dust effects occurring at nearby sensitive receptors is set out below and is based on professional judgement and the IAQM guidance (Ref: 9.14), as previously outlined.

9.5.2 As the development is large in scale and covers a wide geographical area it was decided to carry out three separate construction phase assessments. The first covers the development itself and the improvements to J15, M1 J15A and the A45. The second covers the Roade Bypass and the third considers the construction phase impacts of the remainder of the road improvements such as those at Junction 15A.

Northampton Gateway Main Site, M1 & A45 highway improvements

Demolition

9.5.3 The vast majority of the Main Site is currently agricultural and does not contain large built structures. However, some demolition will be required for scattered farm buildings and other structures, plus the breakup of existing road surfaces around Junction 15.

9.5.4 Overall, the dust emission magnitude for the demolition stage is considered to be *Small*.

Earthworks

9.5.5 Ground clearance works, site levelling and excavations for foundations will be performed during this stage.

9.5.6 Sites greater than 10,000m^2 are considered 'Large' with reference to the IAQM guidance. As the Main Site is far larger than this threshold (circa 25,000,000m^2) it is anticipated that significant earthworks will be required and the dust emission magnitude is considered to be *Large.*

Construction

9.5.7 During construction, activities which may have the potential to cause significant dust emissions may include concrete batching, sandblasting and piling, in addition to the general handling of construction materials and windblow from stockpiles of friable materials, particularly during higher wind speeds.

9.5.8 Primary construction materials will be concrete, steel framework and metal cladding to roof and walls. These materials and methods of construction are of relatively low dust generating potential.

9.5.9 However, the scale of the Proposed Development, which will include over 500,000m^3 warehousing space, will be far in excess of the IAQM's 100,000m^3 'Large' threshold. As such, the dust emission magnitude for construction is considered to be *Large*.

Trackout

9.5.10 Construction traffic, when travelling over soiled road surfaces, has the potential to generate dust emissions and also to soil the local road network. During dry weather, unsurfaced and soiled roads can lead to dust being emitted due to pick-up by vehicle wheels. The potential for roads to be soiled is dependent on the length of the on-site unpaved roads.

9.5.11 Given the scale of the site, it is likely that track-out will have a *Large* dust emission magnitude, regardless of the nature of onsite road surfaces.

Construction Emissions Summary

9.5.12 A summary of the dust emission magnitude as a result of the activities of Demolition, Earthworks, Construction and Trackout, as specified in the IAQM guidance and discussed above, are listed in Table 9.9 below. Overall, the dust emission magnitude is predicted to be *Large*.

Table 9.9: Dust Emission Magnitude Summary

Construction Stage	Dust Emission Magnitude
Demolition	Small
Earthworks	Large
Construction	Large
Trackout	Large

Sensitivity of the Area

9.5.13 Having established the emission magnitude for dust above, the sensitivity of the area must be considered to establish the significance of effects. The effect of dust emissions depends on the sensitivity of each receptor. High sensitivity human receptors include residential dwellings, schools and hospitals.

9.5.14 The impacts of dust emissions from the sources discussed above have the potential to cause an annoyance to human receptors living in the local area. Within distances of 20m of the site boundary there is a high risk of dust impacts, regardless of the prevailing wind direction. Up to 100m from the construction site, there may still be a high risk, particularly if the receptor is downwind of the dust source.

9.5.15 With the exponential decline in dust with distance from dust generating activities, it is considered that for receptors more than 350m from the site boundary, or more than 50m from a road used by construction vehicles, within 500m of the site entrance, the risk is negligible. Furthermore, the risks at over 100m are only potentially significant in certain weather conditions, e.g. downwind of the source during dry periods.

9.5.16 The approximate number of high sensitivity human receptors in the vicinity of the application site is detailed in Table 9.10 below, with distance contours shown in Figure 9.1. Most sensitive receptors in the vicinity are located to the east. These include residential dwellings and a nursery school. There are, only 2 high~~ly~~ sensitiv ity~~e~~ receptors within 20m of the site boundary (see Table 9.10).

Table 9.10: High Sensitivity Receptors 'at risk' of dust impacts

Distance from source	Approx. Number of High Sensitivity Receptors	Details
<20m from site boundary	2 ~~0~~	Residential dwellings in Collingtree.
20-100m from site boundary	20	Residential dwellings in Collingtree.
100-350m from site boundary	40	Dwellings in Collingtree, Milton Malsor and Grange Park. Milton Malsor Village Park. Kiddi Caru Day Nursery.
20m from roads within 500m of site entrance	>10	Residential Dwellings off Collingtree Rd & Rectory Lane, in Milton Malsor; West Lodge Cottages; Ash Lane, Collingtree,
50m from roads within 500m of site entrance*	10-100	Residential Dwellings off A45 in Wootton Residential Dwellings off Collingtree Rd in Milton Malsor; Dwellings off Ash Lane, Collingtree

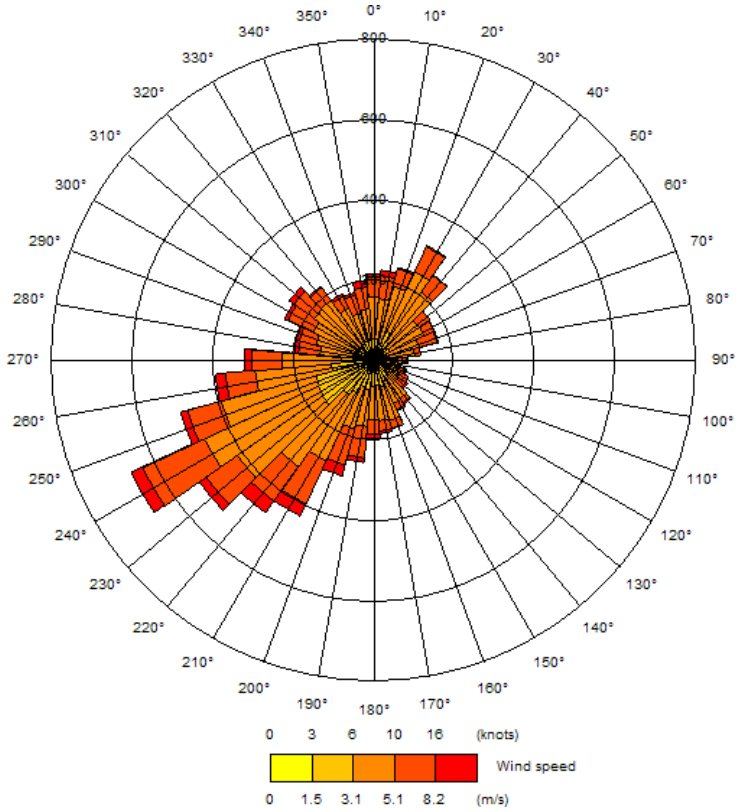
Note: *500m from site boundary in the absence of detailed knowledge of site entrance(s) locations.

9.5.17 Plate 9.1, below, shows the prevailing wind is from the south-west. A large proportion of the potentially sensitive receptors identified in Table 9.10 are to the north-east of the development, downwind of the prevailing wind. It is considered, therefore, that although there are very few sensitive receptors in the immediate vicinity of the site, the potential sensitivity of the area to Demolition, Earthworks and Construction effects is *Medium*.

9.5.18 There are over 10 receptors within 20m of roads within 500m of the site entrance; as such, the sensitivity of the area to Trackout is considered *High.*

9.5.19 The likelihood of exceedances of the PM_{10} AQSs is considered to be *Low*, due to relatively low background concentrations, in comparison to the 40µg.m^{-3} annual mean AQS.

Plate 9.1: Wind Rose for Bedford, 2016



Risk Effects and Significance of the Construction Phase

9.5.20 Having established the likely dust emission magnitude and sensitivity of the area, the risk of impacts can be determined in accordance with the IAQM guidance. These are summarised in Table 9.11.

Table 9.11: Summary risk effects of construction, based on the IAQM's dust guidance

Source	Dust Soiling Effects	PM_{10} Effects	Ecological Effects
Demolition	Negligible Risk	Low Risk	Negligible
Earthworks	Medium Risk	Low Risk	Negligible
Construction	Medium Risk	Low Risk	Negligible
Trackout	High Risk	Low Risk	Negligible

9.5.21 In the absence of any mitigation, including the Construction Environmental Management Plan (CEMP) measures; Demolition, Earthworks and Construction emissions are considered to present a ***Medium Risk*** of dust soiling effects, whilst, Trackout is considered to present a ***High Risk*** of dust soiling effects. The Proposed Development is considered ***Low Risk*** for PM_{10} health effects, in the absence of any mitigation.

Roade Bypass & A508 Improvements

Demolition

9.5.22 The vast majority of the Roade bypass site is currently agricultural and does not contain built structures. However, some demolition may be required for the break-up of existing road surfaces on the A508, between the Main Site and the proposed Bypass.

9.5.23 Overall, the dust emission magnitude for the demolition stage is considered to be *Small*.

Earthworks

9.5.24 Sites greater than 10,000m^2 are considered 'Large' with reference to the IAQM guidance. As the site is far larger than this threshold it is anticipated that significant earthworks will be required and the dust emission magnitude is considered to be *Large.*

Construction

9.5.25 During construction, activities which may have the potential to cause significant dust emissions may include concrete batching, sandblasting and piling. It is not currently known if any of these activities will take place during construction. In addition to the general handling of construction materials and windblow from stockpiles of friable materials, particularly during higher wind speeds.

9.5.26 The scale of the Proposed Development will be in excess of the IAQM's 100,000m^3 'Large' threshold. As such, the dust emission magnitude for construction is considered to be *Large*.

Trackout

9.5.27 Construction traffic, when traveling over soiled road surfaces, has the potential to generate dust emissions and also to soil the local road network. During dry weather, unsurfaced and soiled roads can lead to dust being emitted due to pick-up by vehicle wheels. The potential for roads to be soiled is dependent on the length of the on-site unpaved roads.

9.5.28 Given the scale of the site, it is likely that trackout will have a *Large* dust emission magnitude, regardless of the nature of onsite road surfaces.

Construction Emissions Summary

9.5.29 A summary of the dust emission magnitude as a result of the activities of Demolition, Earthworks, Construction and Trackout, as specified in the IAQM guidance and discussed above, are listed in Table 9.12 below. Overall, the dust emission magnitude is predicted to be *Large*.

Table 9.12: Dust Emission Magnitude Summary

Construction Stage	Dust Emission Magnitude
Demolition	Small
Earthworks	Large
Construction	Large
Trackout	Large

Sensitivity of the Area

9.5.30 The approximate number of high sensitivity human receptors in the vicinity of the Bypass site is detailed in Table 9.13 below, with distance contours shown in Figure 9.2. The majority of sensitive receptors are located in the village of Roade. This includes numerous residential dwellings and the Elizabeth Woodville School. None of these are located within 20m of the site boundary, however, there are some residential dwellings and farms on the outskirts of Roade that do fall within 20m of the Bypass site boundary, primarily areas for earthworks and landscaping while they remain further from the route of the proposed road itself.

Table 9.13: High Sensitivity Receptors 'at risk' of dust impacts

Distance from source	Approx. Number of High Sensitivity Receptors	Details
<20m from site boundary	10	White House Farm, Bailey Brooks Lane residential, Hyde Farm Dovecote Road residential and West Lodge Cottages.
20-100m from site boundary	50	Residential dwellings in Roade.
100-350m from site boundary	1,500+	Residential dwellings in Roade and the Elizabeth Woodville School
20m from roads within 500m of site entrance	>10	Residential dwellings off the A508, Bailey Brooks Lane, Stratford Road & Elizabeth Woodville School.
50m from roads within 500m of site entrance*	10-100	Residential dwellings off the A508, Bailey Brooks Lane, Stratford Road & Elizabeth Woodville School.

Note: *500m from site boundary in the absence of detailed knowledge of site entrance(s) locations.

9.5.31 Plate 9.1 shows the prevailing wind is from the south-west. A large proportion of the potentially sensitive receptors identified in Table 9.13 are to the north-east of the development, downwind of the prevailing wind. Furthermore, there are some receptors located within 20m of the bypass. As such the sensitivity of the area to Construction, Earthworks and Demolition is considered to be *Medium*.

9.5.32 There are over 10 receptors within 20m of roads within 500m of the site entrance; as such, the sensitivity of the area to Trackout is considered *High.*

9.5.33 The likelihood of exceedances of the PM_{10} AQSs is considered to be Low, due to relatively low background concentrations, in comparison to the 40µg.m^{-3} annual mean AQS.

Risk Effects and Significance of the Construction Phase

9.5.34 Having established the likely dust emission magnitude and sensitivity of the area, the risk of impacts can be determined in accordance with the IAQM guidance. These are summarised in Table 9.14.

Table 9.14: Summary risk effects of construction, based on the IAQM's dust guidance

Source	Dust Soiling Effects	PM_{10} Effects	Ecological Effects
Demolition	Negligible Risk	Low Risk	Negligible
Earthworks	Medium Risk	Low Risk	Negligible
Construction	Medium Risk	Low Risk	Negligible
Trackout	High Risk	Low Risk	Negligible

9.5.35 In the absence of any mitigation, including Construction Environmental Management Plan (CEMP) measures, Demolition, Earthworks and Construction are considered to present a ***Medium Risk*** of dust soiling effects, whilst, Trackout is considered to present a ***High Risk*** of dust soiling effects. The Proposed Development is considered ***Low Risk*** for PM_{10} health effects, in the absence of any mitigation.

Other Highways Mitigation Measures

9.5.36 As stated previously, the proposals also include a package of small-scale improvements to the local road network, as shown in Figures 9.3 and 9.4. As these improvements are minor (e.g. road widening or junction reconfiguration), it was decided that a full construction phase assessment was not required and as such the overall dust magnitude of these improvements is considered to be *Small*.

9.5.37 These sites are located in more rural areas, away from any large population centres and as such the sensitivity of these areas is considered to be *Low*. Overall, these minor road improvements are considered Low Risk for dust soiling effects and Negligible Risk for PM_{10} health effects, in the absence of any mitigation.

Intra-development cumulative dust

9.5.38 There will be some overlap in the construction of both the Main Site, and the Roade Bypass and A508 Corridor; however, there are very few sensitive receptors within 350m of both sites and no identified receptors downwind, and within 350m of both sites. As such, the risk of intra-development cumulative dust impacts is considered to be *Negligible*.

Vehicle Emissions

9.5.39 Combustion exhaust gases from diesel-powered plant and construction vehicles accessing the site will also be released. Given the scale of the Proposed Development, the volumes and periods over which these releases will occur are likely to have the potential to cause effects at nearby existing sensitive receptors.

9.5.40 Appendix 9.11 shows that the emissions from construction related vehicles associated with the Proposed Development will have a ***Negligible*** impact on local receptors in AQMA No.1 and AQMA No.5.

Operational Effects

Dust Impacts (Aggregate Terminal)

9.5.41 The operation of the Proposed Development includes an Aggregate Terminal for the storage and movement of aggregates.

9.5.42 Estimates of the magnitude of dust emissions are based on the current operation of GRS's aggregate terminal. The terminal has no conveyor system in place at their current site and as such, stockpiles rarely exceed 5m in height.

9.5.43 The current site, which is located in central Northampton and in proximity to a number of highly sensitive human receptors, has had no dust issues; this indicates that dust emissions from the site are currently not significant.

9.5.44 Using the IAQM construction guidance, the magnitude of dust emissions from the processing and storage of aggregates is, however, estimated to be *Medium.* This is a worst-case estimate.

9.5.45 Figure 9.5 shows the number of sensitive receptors within 350m the site boundary. The 350m boundary is shown to account for the receptors potentially susceptible to emissions from the storage and processing of the aggregates.

9.5.46 Rathvilly and Lodge Farms are the only human receptors currently located within 350m of the Proposed Aggregate Terminal; however, the Proposed Development will introduce a number of additional human receptors within this boundary. These receptors are, however, not considered highly sensitive to nuisance dust impacts. Given, the number of human receptors and their low sensitivity to dust soiling, the overall sensitivity of the area is considered *Low*.

9.5.47 The operation of the Aggregates Terminal is, therefore, considered ***Low Risk*** for nuisance dust impacts and ***Low Risk*** for PM_{10} health effects, in the absence of mitigation, including CEMP measures.

Road Emissions

9.5.48 Full results from the ADMS-Roads assessment for each local study areas are presented below.

9.5.49 Discrete model receptors were positioned at the façades of the sensitive receptors, predominantly residential dwellings, closest to the source of pollution, i.e. roads.

9.5.50 Results are provided in summary tables identifying modelled concentrations at receptors for the baseline year (2018) and future years (2021 and 2031) providing the "without" the development contribution total concentration and "with" the development contribution total concentration.

9.5.51 The tables also present the difference in concentrations and the percentage change (%) with regard to the long term AQSs for NO_2 and PM_{10} ($40\mu g.m^{-3}$). The IAQM impact descriptor is also provided for each receptor.

Northampton AQMA No.1, Collingtree and NSSUE

9.5.52 Modelled receptors in the Northampton AQMA No.1 study area are detailed in Appendix 9.2, and displayed on Figure 9.6.

9.5.53 Highways England will soon be implementing a Smart Motorway scheme in this area. This will see the current hard shoulder used as an additional running lane for 24 hours a day, except during emergency conditions (i.e. breakdown or collision). The Smart Motorway scheme will see traffic move closer to the receptors in Collingtree and the NSSUE; a sensitivity test was undertaken which showed that pollution concentrations increased with the Smart Motorway scheme at these locations, assuming no improvements to traffic flow. As such, all future scenarios have assumed that the Smart Motorway scheme will be in place.

9.5.54 Tables 9.15 and 9.16 below show the impact of the Proposed Development, in Collingtree and the NSSUE, on annual mean NO_2 and PM_{10} concentrations, respectively.

9.5.55 The data in Table 9.16 show that annual mean concentrations of PM_{10} are predicted to be below the 40µg.m^{-3} AQS in all scenarios. Annual mean concentrations of NO_2 are predicted to be below the 40µg.m^{-3} AQS in all future scenarios; however, one exceedance of the AQS is predicted at C1 in the baseline year.

9.5.56 For the hourly AQS for NO_2 (200µg.m^{-3} not to be exceeded more than 18 times a year), TG(16) paragraph 7.90 states that if the annual mean is below 60µg.m^{-3}, the hourly AQS should be met. The data in Table 9.156 show that this threshold is not expected to be exceeded.

9.5.57 For PM_{10} the following equation can be used to derive the number of days that the daily mean AQS limit for 50µg.m^{-3} is likely to be exceeded.

No. 24-hour mean exceedances = -18.5 + 0.00145 × annual mean^3 + (206/annual mean)

~~9.5.57~~9.5.58 The data in Table 9.16 show that the highest annual mean PM_{10} concentration predicted, in any scenario, was 20.1µg.m^{-3}. Based on the above formula, this would lead to 3.49 exceedance days, which is ~~87~~90% below the 35-day limit.

~~9.5.58~~9.5.59 The data in Tables 9.~~16~~ 15 and 9.~~17~~ 16 shows that all changes in annual mean NO_2 and PM_{10} concentrations, in both 2021 and 2031, are predicted to be Negligible, with reference to the EPUK & IAQM Impact Descriptors.

~~9.5.59~~9.5.60 The largest change in annual mean NO_2 is anticipated to occur at C1 and C16 with the development in 2031, where increases of 0.5% relative to the 40µg.m^{-3} AQS [3] are predicted. The largest change in annual mean PM_{10} is predicted to occur at C1, C2, C3 and C16 with the development in 2031, where increases of 0.5% are ~~also~~ predicted. ~~Concentrations of NO_2 and PM_{10} are anticipated to increase at all receptors in all scenarios.~~

~~9.5.60~~9.5.61 Considering the above, the Proposed Development is expected to have an overall ***Negligible*** impact on local air quality at Collingtree and the NSSUE.

~~9.5.61~~9.5.62 The impact of the Proposed Development on receptors in Collingtree and the NSSUE is expected to remain overall ***Negligible*** in the interim period.

~~9.5.62~~9.5.63 The junction improvements to J15 and J15a will likely reduce congestion, and hence pollution, on the M1 adjacent to Collingtree and as such, the above conclusions are likely worst-case.

Table 9.15: Predicted concentration (µg.m^{-3}) of NO_2 in the Collingtree and NSSUE Study Area.

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
C1	**40.1**	34.834.1	34.834.1	0.0	-0.1	Negligible	21.0	21.2	0.2	0.5	Negligible
C2	38.6	33.532.8	33.532.8	0.0	0.0	Negligible	20.3	20.5	0.2	0.4	Negligible
C3	37.0	32.131.4	32.131.4	0.0	0.0	Negligible	19.5	19.7	0.2	0.4	Negligible
C4	35.5	30.830.1	30.730.1	0.0	0.0	Negligible	18.8	19.0	0.2	0.4	Negligible
C5	29.0	25.024.6	25.024.6	0.0	0.0	Negligible	15.8	15.9	0.1	0.3	Negligible
C6	32.1	27.827.2	27.827.2	0.0	0.0	Negligible	17.2	17.4	0.1	0.4	Negligible
C7	30.4	26.325.8	26.325.8	0.0	0.0	Negligible	16.5	16.6	0.1	0.3	Negligible
C8	33.1	28.728.1	28.728.1	0.0	0.0	Negligible	17.7	17.9	0.2	0.4	Negligible
C9	33.2	28.728.1	28.728.1	0.0	0.0	Negligible	17.7	17.9	0.2	0.4	Negligible
C10	33.1	28.728.1	28.628.1	0.0	0.0	Negligible	17.7	17.8	0.1	0.4	Negligible
C11	33.1	28.628.0	28.628.0	0.0	0.0	Negligible	17.7	17.8	0.1	0.4	Negligible
C12	33.1	28.628.0	28.628.0	0.0	0.0	Negligible	17.7	17.8	0.1	0.4	Negligible
C13	35.0	30.329.7	30.329.7	0.0	0.0	Negligible	18.6	18.7	0.2	0.4	Negligible
C14	35.0	30.329.6	30.329.6	0.0	0.0	Negligible	18.5	18.7	0.2	0.4	Negligible
C15	34.8	30.129.5	30.129.5	0.0	0.0	Negligible	18.5	18.6	0.2	0.4	Negligible
C16	39.6	34.333.6	34.333.6	0.0	0.01	Negligible	20.7	20.9	0.2	0.5	Negligible
C17	34.6	30.029.4	30.029.4	0.0	0.0	Negligible	18.4	18.5	0.2	0.4	Negligible
NSSUE1	26.9	23.2	23.2	0.0	0.0	Negligible	14.9	15.0	0.1	0.23	Negligible
NSSUE2	29.4	25.4	25.4	0.0	0.0	Negligible	16.01	16.1	0.1	0.32	Negligible
NSSUE3	28.6	24.7	24.7	0.0	0.0	Negligible	15.67	15.78	0.1	0.32	Negligible

Table 9.16: Predicted concentration (µg.m^{-3}) of PM_{10} in the Collingtree and NSSUE Study Area.

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
C1	20.1	19.8	19.9	0.0	0.1	Negligible	19.6	19.8	0.2	0.5	Negligible
C2	19.8	19.6	19.6	0.0	0.1	Negligible	19.3	19.5	0.2	0.5	Negligible
C3	19.6	19.3	19.3	0.0	0.1	Negligible	19.1	19.3	0.2	0.5	Negligible
C4	19.3	19.1	19.1	0.0	0.1	Negligible	18.8	19.0	0.2	0.4	Negligible
C5	18.3	18.1	18.1	0.0	0.1	Negligible	17.8	17.9	0.1	0.3	Negligible
C6	18.8	18.5	18.6	0.0	0.1	Negligible	18.3	18.4	0.1	0.4	Negligible
C7	18.6	18.3	18.3	0.0	0.1	Negligible	18.0	18.1	0.1	0.3	Negligible
C8	19.0	18.7	18.7	0.0	0.1	Negligible	18.4	18.6	0.2	0.4	Negligible
C9	19.0	18.7	18.7	0.0	0.1	Negligible	18.4	18.6	0.2	0.4	Negligible
C10	19.0	18.7	18.7	0.0	0.1	Negligible	18.4	18.6	0.2	0.4	Negligible
C11	19.0	18.7	18.7	0.0	0.1	Negligible	18.4	18.6	0.2	0.4	Negligible
C12	19.0	18.7	18.7	0.0	0.1	Negligible	18.4	18.6	0.2	0.4	Negligible
C13	19.3	19.0	19.0	0.0	0.1	Negligible	18.7	18.9	0.2	0.4	Negligible
C14	19.2	19.0	19.0	0.0	0.1	Negligible	18.7	18.9	0.2	0.4	Negligible
C15	19.2	18.9	19.0	0.0	0.1	Negligible	18.7	18.9	0.2	0.4	Negligible
C16	20.0	19.7	19.8	0.0	0.1	Negligible	19.5	19.7	0.2	0.5	Negligible
C17	19.2	18.9	19.0	0.0	0.1	Negligible	18.7	18.8	0.2	0.4	Negligible
NSSUE1	18.0	17.7	17.8	0.0	0.1	Negligible	17.5	17.6	0.1	0.3	Negligible
NSSUE2	18.4	18.1	18.1	0.0	0.1	Negligible	17.9	18.0	0.1	0.3	Negligible
NSSUE3	18.3	18.0	18.0	0.0	0.1	Negligible	17.7	17.9	0.1	0.3	Negligible

Local Study Area: Northampton AQMA No.5, Wootton

9.5.639.5.64 Modelled receptors in the Northampton AQMA No.5 study area are detailed in Appendix 9.2, and displayed on Figure 9.7.

9.5.649.5.65 Tables 9.17 and 9.18, below, show the impact of the Proposed Development, in Collingtree and the NSSUE, on annual mean NO_2 and PM_{10} concentrations, respectively.

9.5.659.5.66 The data in Table 9.17 and Table 9.18 show that annual mean concentrations NO_2 and PM_{10} are predicted to be below the 40µg.m^{-3} AQS in all scenarios.

9.5.669.5.67 Table 9.17 identifies the highest annual mean concentration of NO_2 (i.e. 28.6µg.m^{-3}) was recorded at W4, in the baseline year. This is 'well below' 60µg.m^{-3} which indicates that the hourly AQS for NO_2 should be met.

9.5.679.5.68 The data in Table 9.18 show that the highest annual mean PM_{10} concentration predicted, in any scenario, was 19.4µg7µg.m^{-3}, at W4 with the Proposed Development in 20212031. Based on the formula in 9.53.578 that, this would lead to 2.833.04 exceedance days, which is 9291% below the 35-day limit for the daily mean AQS.

9.5.689.5.69 The data in Tables 9.17 and 9.18 shows that all changes in annual mean NO_2 and PM_{10} concentrations, in both 2021 and 2031, are predicted to be Negligible, with reference to the EPUK & IAQM Impact Descriptors.

9.5.699.5.70 The largest change in annual mean NO_2 is anticipated to occur at W4 with the development in 2021, where an increase of 1.3µg.m^{-3} (3.2% relative to the AQS) is predicted. The largest change in annual mean PM_{10} is also predicted at W4 with the development in 2031, where an increase of 0.8µg.m^{-3} (1.9% relative to the AQS) is predicted. Concentrations of NO_2 and PM_{10} are anticipated to increase at all receptors in all scenarios.

9.5.709.5.71 Considering the above, the Proposed Development is expected to have an overall ***Negligible*** impact on local air quality at AQMA No.5, Wootton.

9.5.719.5.72 According to Table 9.17, the baseline year was the worst year for NO_2. As such, the predicted increases in annual mean NO_2 in 2021 were offset by improving background concentrations and improvements to the vehicle fleet in just three years.

9.5.729.5.73 The re-distribution of traffic flows as a result of J15A improvements are a more significant contributor to increases in traffic on the A45 than HGV traffic generated by vehicles travelling to and from the Proposed Development in 2021. As the J15A improvements will have already occurred, traffic flows on the A45 are not, therefore, anticipated to grow as quickly in the interim period.

9.5.739.5.74 Therefore, the impact of the Proposed Development on receptors in Northampton AQMA No.5 is expected to remain overall ***Negligible*** in the interim period.

Table 9.17: Predicted concentration (µg.m^{-3}) of NO_2 in the Northampton AQMA No.5, Wootton Study Area.

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
W1	21.3	17.9	18.6	0.7	1.7	Negligible	11.2	11.6	0.4	1.0	Negligible
W2	28.0	23.4	24.7	1.3	3.1	Negligible	13.9	14.5	0.7	1.6	Negligible
W3	23.9	20.0	20.9	0.9	2.2	Negligible	12.2	12.7	0.5	1.2	Negligible
W4	28.6	23.9	25.2	1.3	3.2	Negligible	14.1	14.8	0.7	1.7	Negligible
W5	24.9	20.8	21.8	1.0	2.5	Negligible	12.6	13.1	0.5	1.3	Negligible

Table 9.18: Predicted concentration (µg.m^{-3}) of PM_{10} in the Northampton AQMA No.5, Wootton Study Area.

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
W1	17.9	17.6	17.8	0.2	0.6	Negligible	17.5	17.9	0.4	1.0	Negligible
W2	19.2	18.9	19.4	0.5	1.2	Negligible	18.8	19.6	0.7	1.8	Negligible
W3	18.4	18.1	18.4	0.3	0.8	Negligible	17.9	18.5	0.5	1.4	Negligible
W4	19.3	19.0	19.5	0.5	1.2	Negligible	18.9	19.7	0.8	1.9	Negligible
W5	18.6	18.3	18.6	0.3	0.9	Negligible	18.1	18.7	0.6	1.5	Negligible

Local Study Area: Northampton AQMA No.4

9.5.749.5.75 Modelled receptors in the Northampton AQMA No.4 study area are detailed in Appendix 9.2, and displayed on Figure 9.8.

9.5.759.5.76 Tables 9.19 and 9.20, below, show the impact of the Proposed Development, in AQMA No.4, on annual mean NO_2 and PM_{10} concentrations, respectively.

9.5.769.5.77 The data in Table 9.19 show that the highest annual mean concentration of NO_2 (i.e. 44.4µg.m^{-3}) was recorded at K7, in the baseline year. This is below 60µg.m^{-3} which indicates that the hourly AQS for NO_2 should be met.

9.5.779.5.78 The data in Table 9.20 show that annual mean concentrations of PM_{10} are predicted to be below the 40µg.m^{-3} AQS in all scenarios. Annual mean concentrations of NO_2 are predicted to be below the 40µg.m^{-3} AQS in all future scenarios.

9.5.789.5.79 The data in Table 9.20 show that the highest annual mean PM_{10} concentration predicted, in any scenario, was 23.0µg.m^{-3}, at K7 in the baseline year. Based on the formula in 9.3.579.5.578 that, this would lead to 8.05 exceedance days, which is 77% below the 35-day limit for the daily mean AQS.

9.5.799.5.80 The data in Table 9.20 show that all changes in annual mean PM_{10} concentrations are predicted to be *Negligible*, with reference to the EPUK & IAQM Impact Descriptors. Changes in annual mean NO_2 concentrations are predicted to be Negligible in both 2031 scenarios.

9.5.809.5.81 However, three *Moderate Adverse* impacts and one *Slight Adverse* impact are predicted in 2021 due to the early operation of the Proposed Development. Of the receptors where likely significant impacts are expected (K4, K7, K10 and K12), all were located on Harborough Road, within proximity of junctions and slowed traffic, where long term concentrations of NO_2 are predicted to be within 5% below of the AQS.

9.5.819.5.82 The largest change in annual mean NO_2 occurs at K10, which is predicted to experience a 0.9 µg.m^{-3} increase; this is a 2.3% change with reference to the 40µg.m^{-3} AQS. The highest predicted annual mean NO_2 concentration with the Proposed Development (i.e. 39.6µg.m^{-3}) was also predicted here in 2021; this was 1% below the AQS.

9.5.829.5.83 Concentrations of NO_2 and PM_{10} are anticipated to increase marginally at all receptors in all scenarios, with none expected to breach the AQS.

9.5.839.5.84 A review of the sensitivity analysis in Appendix 9.4 shows that only one *Slight Adverse* impact is predicted in AQMA No.4, in 2021, due to the early operation of the Proposed Development, when basing the assessment on 2015 verification data. This impact is anticipated at Receptor K10.

9.5.849.5.85 In this sensitivity test, the largest increase in annual mean NO_2 occurs at K10, where a 0.7 µg.m^{-3} increase is predicted, this is a 1.8% increase with reference to the AQS. The highest predicted annual mean NO_2 concentration with the Proposed Development (i.e.34.1µg.m^{-3}) was also predicted here; this was 15% below the AQS.

9.5.859.5.86 Due to inherent uncertainties in the modelling methodology the IAQM recommends that percentage changes should be rounded to their nearest whole number. As such, the increases predicted at K10 between the two sensitivity tests are directly comparable. The discrepancy in significance between the two sensitivity tests is due to the 'long term average concentration' at each receptor, with concentrations in the 2016 sensitivity on average 3.5µg.m^{-3} higher at each receptor.

9.5.869.5.87 Considering the above, the impact of the Proposed Development on local air quality, without mitigation, in 2021, is considered to be, at worst, ***Slight Adverse***. By 2031, the overall impact of the Proposed Development will be ***Negligible***, even in the absence of mitigation.

~~9.5.87~~9.5.88 As the baseline year (2018) was consistently worst-case for NO_2 at all receptors, predicted improvements to the vehicle fleet are predicted to off-set any increases in NO_2 due to the Proposed Development (~~SFRI~~SRFI flows and re-distributed traffic due to highway works) within three years. Highway improvement works are also anticipated to reduce total AADT flows on Harborough Road by 2031, compared to 2021.

~~9.5.88~~9.5.89 Given that the *Moderate Adverse* impact predicted at receptor K10 would require an increase of
2.3 µg.m^{-3}, in 2021, for it to become ~~a~~ *Substantial Adverse*, it is considered that there is sufficient head-room for impacts to remain at worst *Moderate Adverse* at isolated dwellings in the interim period.

~~9.5.89~~9.5.90 It is, therefore, considered that the overall impact of the Proposed Development on AQMA 4 will remain at worst ***Slight Adverse***, in the interim period.

Table 9.19: Predicted concentration (µg.m^{-3}) of NO_2 in the Northampton AQMA No.4 Study Area.

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
K1	36.5	26.1	26.3	0.2	0.5	Negligible	17.2	17.3	0.1	0.3	Negligible
K2	27.4	21.0	21.1	0.1	0.3	Negligible	14.4	14.6	0.2	0.4	Negligible
K3	**44.2**	29.3	29.6	0.3	0.7	Negligible	19.1	19.2	0.2	0.4	Negligible
K4	**40.3**	37.5	38.2	0.7	1.8	Moderate	22.1	22.3	0.2	0.4	Negligible
K5	38.7	32.7	33.2	0.5	1.3	Negligible	19.6	19.7	0.1	0.1	Negligible
K6	39.8	33.6	34.1	0.5	1.3	Negligible	20.1	20.1	0.1	0.2	Negligible
K7	**44.4**	37.7	38.3	0.6	1.5	Moderate	22.1	22.1	0.1	0.2	Negligible
K8	30.4	26.0	26.3	0.3	0.8	Negligible	16.1	16.1	0.0	0.1	Negligible
K9	27.1	23.4	23.7	0.3	0.7	Negligible	14.8	14.8	0.0	0.0	Negligible
K10	**42.4**	38.7	39.6	0.9	2.3	Moderate	22.2	22.5	0.3	0.7	Negligible
K11	34.9	31.6	32.2	0.6	1.5	Negligible	18.8	18.9	0.1	0.1	Negligible
K12	35.4	31.9	32.5	0.7	1.6	Slight	18.8	18.9	0.2	0.4	Negligible
K13	39.2	33.2	33.7	0.5	1.3	Negligible	19.8	19.9	0.1	0.1	Negligible

Table 9.20: Predicted concentration (µg.m^{-3}) of PM_{10} in the Northampton AQMA No.4 Study Area.

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without Development	2031 With Development	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
K1	21.2	20.0	20.1	0.1	0.1	Negligible	20.2	20.2	0.1	0.2	Negligible
K2	19.6	18.8	18.8	0.0	0.1	Negligible	18.8	18.9	0.1	0.2	Negligible
K3	22.6	20.8	20.9	0.1	0.2	Negligible	21.0	21.1	0.1	0.2	Negligible
K4	21.7	22.2	22.4	0.2	0.4	Negligible	22.0	22.2	0.1	0.3	Negligible
K5	21.7	21.5	21.6	0.1	0.3	Negligible	21.4	21.4	0.1	0.2	Negligible
K6	22.0	21.7	21.9	0.1	0.3	Negligible	21.6	21.7	0.1	0.2	Negligible
K7	23.0	22.8	23.0	0.2	0.4	Negligible	22.6	22.7	0.1	0.2	Negligible
K8	20.1	19.9	20.0	0.1	0.2	Negligible	19.7	19.7	0.0	0.1	Negligible
K9	19.1	19.3	19.4	0.1	0.2	Negligible	19.1	19.1	0.0	0.1	Negligible
K10	21.4	21.5	21.6	0.1	0.4	Negligible	21.1	21.2	0.1	0.2	Negligible
K11	20.8	20.9	21.0	0.1	0.3	Negligible	20.6	20.6	0.1	0.1	Negligible
K12	~~19.9~~20.4	20.4	20.5	0.1	0.3	Negligible	20.0	20.1	0.0	0.1	Negligible
K13	21.~~0~~8	2~~1~~0.6	21.7	0.~~1~~1.2	0.3~~2.9~~	Negligible	21.5	21.6	0.1	0.2	Negligible

Northampton AQMAs No.2, 6 and 8

9.5.909.5.91 Modelled receptors in the Northampton AQMA No.2, No.6 and No.8 study area are detailed in Appendix 9.2, and displayed on Figure 9.9 to 9.11, respectively.

9.5.919.5.92 Tables 9.21 and 9.22, below, show the impact of the Proposed Development on annual mean NO_2 and PM_{10} concentrations, respectively.

9.5.929.5.93 Table 9.21 identifies an exceedance of the annual mean AQS for NO_2, in both "without" and "with" Proposed Development scenarios at receptor CS1. As such, it can be confirmed that the Proposed Development is not going to result in an exceedance of any long-term AQS.

9.5.939.5.94 The highest annual mean concentration of NO_2 with the Proposed Development (i.e. 47.2µg.m^{-3}) was recorded at CS1, in 2021. This is below 60µg.m^{-3} which indicates that the hourly AQS for NO_2 should be met with the Proposed Development. However, ~~four~~ other exceedances of the annual mean AQS for NO_2 are predicted in the 2018 baseline year ~~and one exceedance in both 2021 scenarios.~~

9.5.949.5.95 The data in Table 9.22 show that annual mean concentrations of PM_{10} are predicted to be below the 40µg.m^{-3} AQS in all scenarios. ~~However, four exceedances of the annual mean AQS for NO_2 are predicted in the baseline year and one exceedance in both 2021 scenarios.~~

9.5.959.5.96 The data in Table 9.22 show that the highest annual mean PM_{10} concentration predicted, in any scenario, was 25.8µg.m^{-3}. Based on the formula in ~~9.3.57~~9.5.57~~8~~, this would lead to 14.5 exceedance days, which is 58.6% below the 35-day limit.

9.5.969.5.97 The data in Table 9.21 and 9.22 show that all changes in annual mean NO_2 and PM_{10} concentrations, in AQMA No.2, No.6 and No.8 are predicted to be *Negligible*, in both 2021 and 2031, with reference to the EPUK & IAQM Impact Descriptors.

9.5.98 The largest change in annual mean NO_2 is anticipated to occur at CS4 with the development in 2021, where an increase of 0.6µg.m^{-3} (1.4% relative to the AQS) is predicted.

~~9.5.97 The largest~~

9.5.99 change~~s~~ in annual mean PM_{10} ~~are~~ is predicted at ~~CS1 and CSS4~~2 with the development in 20~~23~~1, where an ~~decreases~~ increase of 0.~~23~~µg.m^{-3} (~~-~~0.~~57~~% relative to the AQS) ~~are~~ is predicted.

~~9.5.98 The Proposed Development is anticipated to slightly benefit air quality in AQMAs No.2 and No.8 in 2021 and 2031. The impact on AQMA No.6 is more complicated. A slight *Negligible* adverse impact on annual mean NO_2 is anticipated in 2021 and 2031, whilst impacts on annual mean PM_{10} are predicted to be *Negligible* beneficial in 2021 and *Negligible* adverse in 2031.~~

9.5.999.5.100 Review of Appendix 9.4 shows that the above results are insensitive to year of model verification; all impacts remain *Negligible* in significance when using 2015 as the year of model verification.

9.5.1009.5.101 Considering the above, the Proposed Development is expected to have an overall ***Negligible*** impact on AQMA No.2. No.6 and No.8, in both 2021, 2031 and in the interim years.

Table 9.21: Predicted concentration (µg.m^{-3}) of NO_2 in the Northampton AQMA No.2, 6 and 8 Study Area.

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development (2021)		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development (2031)		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
VP1	37.8	25.7	25.9	0.1	0.3	Negligible	19.7	19.7	0.0	0.0	Negligible
VP2	39.8	27.0	27.1	0.1	0.3	Negligible	20.3	20.3	0.0	0.0	Negligible
VP3	**50.0**	33.7	33.7	0.0	0.0	Negligible	23.3	23.1	-0.1	-0.4	Negligible
VP4	36.4	29.9	29.8	-0.1	-0.2	Negligible	21.7	21.7	0.0	0.0	Negligible
VP5	34.1	29.3	29.2	-0.1	-0.3	Negligible	21.6	21.5	-0.1	-0.1	Negligible
VP6	36.3	30.3	30.5	0.1	0.4	Negligible	22.0	22.1	0.1	0.2	Negligible
SM1	29.1	26.0	26.0	0.0	0.0	Negligible	20.3	20.2	0.0	0.0	Negligible
SM2	27.7	25.0	25.0	0.0	0.0	Negligible	19.8	19.8	0.0	0.0	Negligible
SM3	27.5	24.9	24.9	0.0	0.0	Negligible	19.7	19.7	0.0	-0.1	Negligible
CS1	**62.6**	**47.1**	**47.2**	0.1	0.3	Negligible	31.4	31.7	0.4	0.9	Negligible
CS2	**46.5**	36.9	37.2	0.3	0.6	Negligible	24.7	25.1	0.3	0.9	Negligible
CS3	33.9	29.2	29.5	0.4	0.9	Negligible	19.8	20.1	0.3	0.7	Negligible
CS4	35.5	31.5	32.1	0.6	1.4	Negligible	21.6	22.1	0.5	1.2	Negligible

Table 9.22 Predicted concentration (µg.m^{-3}) of PM_{10} in the Northampton AQMA No.2, 6 and 8 Study Area.

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
VP1	19.6	17.6	17.7~~17.5~~	0.0~~-0.2~~	0.1~~-0.4~~	Negligible	17.4	17.3	-0.1	-0.1	Negligible
VP2	19.8	17.9	17.9~~17.7~~	0.0~~-0.2~~	0.1~~-0.4~~	Negligible	17.6	17.6	0.0	-0.1	Negligible
VP3	20.9	19.1	19.1~~18.9~~	0.0~~-0.2~~	0.0~~-0.5~~	Negligible	18.8	18.8	0.0	0.0	Negligible
VP4	19.1	18.5	18.5~~18.3~~	0.0~~-0.2~~	0.0~~-0.5~~	Negligible	18.3	18.2	0.0	0.0	Negligible
VP5	18.8	18.4	18.4~~18.2~~	0.0~~-0.2~~	-0.1~~-0.6~~	Negligible	18.2	18.1	0.0	-0.1	Negligible
VP6	19.3	18.8	18.8~~18.6~~	0.0~~-0.2~~	0.1~~-0.4~~	Negligible	18.6	18.6	0.1	0.2	Negligible
SM1	16.9	16.6	16.6~~16.4~~	0.0~~-0.2~~	0.0~~-0.5~~	Negligible	16.5	16.4	0.0	0.0	Negligible
SM2	16.9	16.5	16.5~~16.3~~	0.0~~-0.2~~	0.0~~-0.5~~	Negligible	16.4	16.4	0.0	0.0	Negligible
SM3	17.7	17.4	17.4~~17.2~~	0.0~~-0.2~~	0.0~~-0.5~~	Negligible	17.3	17.3	0.0	0.0	Negligible
CS1	25.3	24.3	24.3~~24.0~~	0.0~~-0.3~~	0.0~~-0.7~~	Negligible	25.7	25.8	0.2	0.4	Negligible
CS2	22.2	21.7	21.8~~21.5~~	0.0~~-0.3~~	0.1~~-0.7~~	Negligible	22.3	22.5	0.1	0.3	Negligible
CS3	20.1	20.0	20.1~~19.8~~	0.1~~-0.2~~	0.2~~-0.6~~	Negligible	20.1	20.2	0.1	0.3	Negligible
CS4	20.2	20.3	20.4~~20.1~~	0.1~~-0.2~~	0.2~~-0.5~~	Negligible	20.7	20.9	0.2	0.5	Negligible

Local Study Area: AQMA No.3

9.5.1019.5.102 Modelled receptors in the Northampton AQMA No.3 study area are detailed in Appendix 9.2, and displayed on Figure 9.12.

9.5.1029.5.103 Tables 9.23 and 9.24, below, show the impact of the Proposed Development on annual mean NO_2 and PM_{10} concentrations, respectively.

9.5.1039.5.104 Table 9.23 identifies the highest annual mean concentration of NO_2 (i.e. 56.60.0µg.m^{-3}) was recorded at SJ49, in the baseline year 2018. This is below 60µg.m^{-3} which indicates that the hourly AQS for NO_2 should be met.

9.5.1049.5.105 Changes in annual mean NO_2 concentrations as a result of the Proposed Development are predicted to be *Negligible* in 2031. However, one *Substantial Beneficial*, one *Moderate Beneficial* and two *Slight Beneficial* impacts were predicted in 2021 at receptor SJ4, SJ9 SJ2 and SJ1 and SJ12, respectively, due to the early operation of the Proposed Development and its highway mitigation measures.

9.5.1059.5.106 Of the receptors where likely significant beneficial impacts are expected (SJ1, SJ2, SJ4, SJ12), all were located on Weedon Road. *Negligible Beneficial* impacts were predicted at receptors on St James Road and *Negligible Adverse* Impacts at the crossroad of Spencer Bridge Road and Harlestone Road.

9.5.1069.5.107 The largest change in annual mean NO_2 occurs at SJ2 and SJ4, which are predicted to experience a 1.0 µg.m^{-3} decrease; this is a 2.60% decrease with reference to the 40µg.m^{-3} AQS. This decrease is considered to be S*ubstantial Beneficial* at SJ4, whilst only *Moderate Beneficial* at SJ2 as the long term ambient concentration is lower at SJ2.

9.5.1079.5.108 The data in Table 9.23 24 show that long term concentrations of PM_{10}, at identified receptor locations, are anticipated to be below the annual mean AQS in all future scenarios.

9.5.1089.5.109 Review of Table 9.23 shows that in 2021, with and without the Proposed Development, three receptors (SJ4, SJ9 and SJ2) are predicted to be in exceedance of the annual mean NO_2 AQS. No additional exceedances of the AQS are therefore anticipated as a result of the Proposed Development.

9.5.1099.5.110 The data in Table 9.24 show that the highest annual mean PM_{10} concentration predicted, in any scenario, was 22.1µg2µg.m^{-3}. Based on the formula in 9.3.579.5.578, this would lead to 6.5 6 exceedance days, which is 81.41% below the 35-day limit.

9.5.1109.5.111 The data in Table 9.24 show that all changes in annual mean PM_{10} concentrations are predicted to be *Negligible*, with reference to the EPUK & IAQM Impact Descriptors.

9.5.1119.5.112 A review of the sensitivity analysis in Appendix 9.4 shows that only two *Slight Beneficial* impacts are predicted in AQMA No.3, in 2021, due to the early operation of the Proposed Development, when basing the assessment on 2015 verification data. These impacts are anticipated at Receptors SJ2 and SJ4. All other impacts remained *Negligible* in significance.

9.5.1129.5.113 It is reasonable to anticipate there will be significant beneficial impacts at sensitive receptors adjacent to junctions on Weedon Road, in 2021 and that all other changes across AQMA No.3 are likely to be *Negligible* in significance.

~~9.5.113~~9.5.114 Considering the above, the Proposed Development is expected to have an overall ***Slight Beneficial*** impact on AQMA No.3 in 2021. By 2031, the overall impact on AQMA No.3 will be ***Negligible*** in significance.

~~9.5.114~~9.5.115 The benefits of the Proposed Development in AQMA No.3 are likely to be generated by the re- distribution of traffic flows, rather than reductions in HGV flows associated with the ~~SFRI~~SRFI terminal. The receptors which are predicted to experience significantly beneficial impacts, in 2021, as a result of the early operation of the Proposed Development are all predicted *Negligible Adverse* impacts due to its operation in 2031. This suggests further traffic re-distribution in AQMA No.3 in the interim period. Therefore, it is predicted that in the interim, the overall impact will be ***Negligible*** in significance.

Table 9.23: Predicted concentration (µg.m^{-3}) of NO_2 in the Northampton AQMA No.3 Study Area.

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
SJ1	**46.9**	38.7	38.0	-0.7	-1.8	Slight	23.4	23.5	0.1	0.3	Negligible
SJ2	**55.1**	**44.9**	**43.9**	-1.0	-2.6	Moderate	26.3	26.4	0.1	0.2	Negligible
SJ3	36.3	29.8	29.3	-0.5	-1.3	Negligible	18.6	18.6	0.0	0.1	Negligible
SJ4	**56.6**	**46.3**	**45.3**	-1.0	-2.6	Substantial	27.1	27.2	0.1	0.2	Negligible
SJ5	**41.0**	34.3	33.8	-0.5	-1.2	Negligible	21.1	21.2	0.1	0.3	Negligible
SJ6	38.6	32.3	32.4	0.1	0.3	Negligible	21.9	21.9	0.0	0.0	Negligible
SJ7	**41.0**	34.5	34.6	0.0	0.1	Negligible	23.4	23.3	0.0	0.0	Negligible
SJ8	38.1	32.1	32.5	0.3	0.8	Negligible	21.7	21.7	-0.1	-0.2	Negligible
SJ9	**50.0**	**40.1**	**40.2**	0.10	0.21	Negligible	26.5	26.6	0.1	0.2	Negligible
SJ10	**45.3**	37.0	37.1	0.2	0.4	Negligible	24.6	24.6	0.0	0.1	Negligible
SJ11	26.6	23.5	23.2	-0.2	-0.5	Negligible	15.7	15.7	0.0	-0.1	Negligible
SJ12	36.2	31.3	30.6	-0.7	-1.8	Slight	17.9	18.0	0.1	0.4	Negligible
SJ13	22.9	20.2	20.1	-0.2	-0.4	Negligible	14.0	14.0	0.0	0.0	Negligible
SJ14	26.5	23.1	22.9	-0.2	-0.6	Negligible	15.3	15.3	0.0	-0.1	Negligible
SJ15	39.8	34.3	33.9	-0.5	-1.2	Negligible	20.4	20.2	-0.2	-0.5	Negligible
SJ16	33.3	30.2	29.9	-0.3	-0.8	Negligible	18.7	18.6	-0.1	-0.3	Negligible

Table 9.24 Predicted concentration (µg.m^{-3}) of PM_{10} in the Northampton AQMA No.3 Study Area.

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
SJ1	20.5	20.8	20.7	-0.2	-0.4	Negligible	21.3	21.4	0.0	0.1	Negligible
SJ2	20.9	21.2	21.0	-0.2	-0.4	Negligible	21.7	21.7	0.0	0.1	Negligible
SJ3	18.2	18.4	18.3	-0.1	-0.2	Negligible	18.8	18.8	0.0	0.0	Negligible
SJ4	21.2	21.5	21.4	-0.2	-0.4	Negligible	22.0	22.1	0.0	0.1	Negligible
SJ5	19.3	19.7	19.6	-0.1	-0.2	Negligible	20.1	20.1	0.0	0.1	Negligible
SJ6	18.9	19.3	19.3	0.0	0.1	Negligible	20.4	20.4	0.0	0.0	Negligible
SJ7	19.4	19.7	19.7	0.0	0.0	Negligible	21.0	21.0	0.0	0.0	Negligible
SJ8	18.9	19.3	19.4	0.1	0.2	Negligible	20.5	20.5	0.0	-0.1	Negligible
SJ9	20.3	20.5	20.5	0.0	0.0	Negligible	21.9	21.9	0.0	0.1	Negligible
SJ10	19.7	20.0	20.1	0.0	0.1	Negligible	21.3	21.3	0.0	0.0	Negligible
SJ11	17.1	17.5	17.4	0.0	-0.1	Negligible	17.9	17.9	0.0	0.0	Negligible
SJ12	18.7	19.2	19.1	-0.1	-0.3	Negligible	18.9	19.0	0.0	0.1	Negligible
SJ13	16.7	17.1	17.1	0.0	-0.1	Negligible	17.5	17.4	0.0	-0.1	Negligible
SJ14	17.4	17.8	17.8	-0.1	-0.1	Negligible	18.1	18.1	-0.1	-0.1	Negligible
SJ15	19.4	20.0	20.0	-0.1	-0.2	Negligible	20.3	20.2	-0.1	-0.3	Negligible
SJ16	18.7	19.6	19.5	-0.1	-0.2	Negligible	19.9	19.8	-0.1	-0.3	Negligible

Local Study Area: Roade and West Lodge Cottages

9.5.1159.5.116 Modelled receptors in the Roade and West Lodge study area are detailed in Appendix 9.2 and displayed on Figure 9.13.

9.5.1169.5.117 The Proposed Development includes plans for a bypass that will take the A508 out of the centre of Roade, reducing traffic and hence pollution levels in the village. The A508 bypass is not due to be operational until after 2021 and as such, the centre of Roade is expected to see increases in traffic flows in the short-term as the Proposed Development opens.

9.5.1179.5.118 Also assessed were the impacts at West Lodge Cottages, which lie on the A508 between Roade and the Main Site. These will experience an increase in flows as they are north of the proposed bypass.

9.5.1189.5.119 Tables 9.25 and 9.26, below, show the impact of the Proposed Development on annual mean NO_2 and PM_{10} concentrations, respectively.

9.5.1199.5.120 The data in Tables 9.25 and 9.26 show that the long term concentrations of NO_2 and PM_{10}, at identified sensitive receptors, are anticipated to be well below the AQS in all future scenarios, and as such the Proposed Development is not anticipated to lead to the exceedance of the long term AQSs for NO_2 and $PM_{10.}$

9.5.1209.5.121 The highest annual mean concentration of NO_2 (i.e. 32.5µg.m^{-3}) was recorded at RO6, in 2018. This is below 60µg.m^{-3} which indicates that the hourly AQS for NO_2 should be met in all scenarios.

9.5.1219.5.122 The data in Table 9.26 show that the highest annual mean PM_{10} concentration predicted, in any scenario, was 17.9µg.m^{-3}. Based on the formula in 9.3.587, this would lead to 1.34 exceedance days, which is 96% below the 35-day limit.

9.5.1229.5.123 The data in Table 9.25 and Table 9.26 show that, in 2021, due to the early operation of the Proposed Development, all changes in annual mean concentrations of NO_2 and PM_{10} are predicted to be *Negligible Adverse*, with reference to the EPUK & IAQM Impact Descriptors.

9.5.1239.5.124 A maximum 1.1 µg.m^{-3} increase in annual mean NO_2 is anticipated at receptor RO5; this is a 2.8% increase relative to the AQS. Although this increase in annual mean NO_2 is relatively large, concentrations of NO_2 remain well below the AQS and such, it is considered *Negligible*.

9.5.1249.5.125 However, by 2031 and after the implementation of the Roade bypass, changes in annual mean NO_2 and PM_{10} are predicted to be beneficial at most receptors in the Roade and WLC study area.

9.5.1259.5.126 One *Slight Beneficial* impact on annual mean PM_{10} is predicted at RO6 in 2031. At RO6, the annual mean concentration of PM_{10} is predicted to change by -2.3µg.m^{-3} (-5.8% with reference to the AQS). This is the largest predicted change in annual mean PM_{10}, at any receptor within any study area, due to the operation of the Proposed Development; however, as baseline concentrations of PM_{10} are 'well below' the AQS this is only considered a *Slight Beneficial* impact.

9.5.1269.5.127 Three *Moderate Beneficial* and three *Slight Beneficial* impacts on annual mean NO_2 are predicted in Roade, in 2031, due to the implementation of the by-pass.

9.5.1279.5.128 Of the receptors where significant beneficial impacts are expected (RO2, RO5, RO6, RO7, RO10 and RO11) in 2031, all were located on the A508 London road and A508 Stratford road. The A508 (Stratford road and London road) is currently the main road through Roade; however, upon implementation of the bypass most of the Roade through-traffic is predicted to use the A508 bypass instead.

9.5.1289.5.129 Impacts at the West Lodge Cottages are considered to be *Negligible*, in all scenarios.

9.5.1299.5.130 Considering the above, the overall impact of the Proposed Development in Roade, in the absence of mitigation, is considered to be ***Negligible*** *Adverse* in 2021 and ***Slight Beneficial*** in 2031.

Roade Bypass 2023 (Interim period)

~~9.5.130~~9.5.131 The A508 Roade bypass will be built within two years of the first occupation of the Main Site. The above assessment has predicted the impacts of the bypass eight years after its implementation. In the interim period, it is predicted that the vehicle fleet will gradually be replaced by more technologically advanced and cleaner powered vehicles. As such, the same reduction in AADT traffic flows in 2031 will have a smaller impact on pollution than the same reduction in 2023. The overall *Slight Beneficial* impact predicted in 2031 is, therefore, likely worst-case for Roade in the interim period.

~~9.5.131~~9.5.132 In 2023, it is predicted that the impact in Roade would be considered *Moderate Beneficial*; however, the receptors which are not expected to benefit from the bypass (i.e. WLC1, WLC2 and RO9) would likely see *Slight Adverse* impacts. As such, the overall significance of the Proposed Development in the interim period should remain ***Slight Beneficial.***

Table 9.25 Predicted concentration (µg.m^{-3}) of NO_2 in the Roade and West Lodge Cottages Study Area.

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
RO1	23.9	15.0	15.5	0.5	1.2	Negligible	9.4	7.4	-2.0	-5.0	Negligible
RO2	27.6	16.3	16.9	0.6	1.4	Negligible	10.1	7.5	-2.5	-6.4	Slight
RO3	16.0	12.2	12.5	0.3	0.9	Negligible	8.2	7.2	-1.0	-2.4	Negligible
RO4	13.4	12.3	12.7	0.4	1.0	Negligible	8.5	7.6	-0.9	-2.3	Negligible
RO5	26.3	19.8	20.9	1.1	2.8	Negligible	11.8	8.1	-3.7	-9.2	Slight
RO6	32.5	24.1	25.1	1.1	2.7	Negligible	13.9	8.2	-5.7	-14.2	Moderate
RO7	27.6	20.5	21.2	0.7	1.8	Negligible	12.1	7.5	-4.6	-11.6	Moderate
RO8	11.7	9.8	9.9	0.1	0.2	Negligible	7.1	6.9	-0.2	-0.5	Negligible
RO9	9.3	8.1	8.1	0.0	0.0	Negligible	6.1	7.3	1.2	3.0	Negligible
RO10	25.0	18.7	19.3	0.6	1.5	Negligible	11.2	7.2	-4.0	-10.0	Moderate
RO11	18.5	14.2	14.6	0.4	0.9	Negligible	9.0	6.8	-2.2	-5.5	Slight
WLC1	24.1	16.2	17.1	0.9	2.2	Negligible	9.8	11.4	1.5	3.9	Negligible
WLC2	28.1	16.3	17.2	0.9	2.3	Negligible	9.9	11.5	1.6	4.0	Negligible

Table 9.26 Predicted concentration (µg.m^{-3}) of PM_{10} in the Roade and West Lodge Cottages Study Area

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
RO1	16.0	15.5	15.6	0.1	0.3	Negligible	15.3	14.4	-1.0	-2.4	Negligible
RO2	16.4	15.8	15.9	0.1	0.4	Negligible	15.7	14.4	-1.2	-3.1	Negligible
RO3	15.0	14.8	14.9	0.1	0.2	Negligible	14.6	14.2	-0.4	-1.1	Negligible
RO4	14.9	14.8	14.9	0.1	0.2	Negligible	14.7	14.3	-0.4	-0.9	Negligible
RO5	16.2	15.7	15.9	0.1	0.3	Negligible	15.6	14.4	-1.2	-3.1	Negligible
RO6	17.4	16.9	17.0	0.2	0.4	Negligible	16.8	14.5	-2.3	-5.8	Slight
RO7	16.8	16.3	16.4	0.1	0.3	Negligible	16.2	14.2	-2.0	-4.9	Negligible
RO8	14.5	14.3	14.3	0.0	0.0	Negligible	14.1	14.0	0.0	0.1	Negligible
RO9	14.1	13.9	13.9	0.0	0.0	Negligible	13.7	14.3	0.6	1.6	Negligible
RO10	16.4	16.0	16.1	0.1	0.3	Negligible	15.8	14.1	-1.7	-4.3	Negligible
RO11	15.4	15.1	15.2	0.1	0.2	Negligible	14.9	14.0	-0.9	-2.3	Negligible
WLC1	17.1	15.8	16.1	0.3	0.7	Negligible	15.6	16.7	1.1	2.9	Negligible
WLC2	17.9	15.8	16.1	0.3	0.7	Negligible	15.6	16.8	1.2	2.9	Negligible

Local Study Area: Blisworth and Milton Malsor

9.5.1329.5.133 Modelled receptors in the Blisworth and Milton Malsor study area are detailed in Appendix 9.2, and displayed on Figure 9.139.14.

9.5.1339.5.134 Tables 9.27 and 9.28, below, show the impact of the Proposed Development, in Blisworth and Milton Malsor, on annual mean NO_2 and PM_{10} concentrations, respectively.

9.5.1349.5.135 The data in Tables 9.27 and 9.28 show that annual mean concentrations of NO_2 and PM_{10} are predicted to be below the 40µg.m^{-3} AQS in all scenarios.

9.5.1359.5.136 The highest annual mean concentration of NO_2 (i.e. 23.2µg.m^{-3}) in Table 9.27 was recorded at BL6, in the baseline year. This is 'well below' 60µg.m^{-3} which indicates that the hourly AQS for NO_2 should be met.

9.5.1369.5.137 The data in Table 9.28 show that the highest annual mean PM_{10} concentration predicted, in any scenario, was 16.8µg.m^{-3}. Based on the formula in 9.3.587, this would lead to 0.64 exceedance days, which is 98% below the 35-day limit.

9.5.1379.5.138 The data in Tables 9.27 and 9.28 show that all changes in annual mean NO_2 and PM_{10} concentrations are predicted to be Negligible, with reference to the EPUK & IAQM Impact Descriptors.

9.5.1389.5.139 The Proposed Development is anticipated to have ~~largely~~ some beneficial impacts on annual mean PM_{10} in both 2021 and 2031. Whilst impacts on annual mean NO_2 are largely beneficial in 2031 and more mixed due to the early operation of the Proposed Development in 2021.

9.5.1399.5.140 In terms of the magnitude of change, Blisworth and Milton Malsor, are predicted to experience some comparatively large changes in pollution concentrations, especially in 2031, where comparatively large benefits are predicted. However, due to good baseline ambient air quality, these changes are not considered significant according to IAQM guidance.

9.5.1409.5.141 Considering the above, the overall impact of the Proposed Development in Blisworth and Milton Ma~~s~~lsor is predicted to be ***Beneficial*** in 2021, 2031 and the interim period.

Table 9.27 Predicted concentration (µg.m^{-3}) of NO_2 in the Blisworth and Milton Malsor Study Area.

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
BL1	9.7	8.7	8.7	0.1	0.1	Negligible	7.2	6.7	-0.4	-1.1	Negligible
BL2	11.5	10.0	9.8	-0.1	-0.3	Negligible	7.2	7.0	-0.2	-0.4	Negligible
BL3	20.6	16.3	15.6	-0.7	-1.7	Negligible	10.6	10.6	0.0	0.1	Negligible
BL4	13.0	10.0	10.4	0.4	1.0	Negligible	6.9	6.3	-0.6	-1.5	Negligible
BL5	14.1	10.5	11.2	0.7	~~w~~1.8	Negligible	7.1	6.4	-0.7	-1.8	Negligible
MM1	11.4	10.0	10.0	0.0	0.0	Negligible	7.2	7.3	0.1	0.3	Negligible
MM2	19.4	16.4	15.8	-0.6	-1.5	Negligible	10.9	11.3	0.3	0.9	Negligible
MM3	10.4	9.2	9.1	-0.1	-0.2	Negligible	6.7	6.6	-0.1	-0.1	Negligible
MM4	12.0	11.1	11.1	-0.1	-0.2	Negligible	7.7	7.5	-0.2	-0.5	Negligible
MM5	10.3	9.8	10.0	0.2	0.4	Negligible	6.8	6.8	0.0	0.0	Negligible
BL6	23.2	18.6	18.7	0.1	0.3	Negligible	11.0	11.1	0.1	0.3	Negligible

Table 9.28 Predicted concentration (µg.m^{-3}) of PM_{10} in the Blisworth and Milton Malsor Study Area

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
BL1	14.5	14.2	14.3~~14.2~~	0.0~~-0.1~~	0.0~~-0.2~~	Negligible	14.3	14.2	-0.2	-0.4	Negligible
BL2	14.8	14.5	14.5~~14.3~~	0.0~~-0.2~~	-0.1~~-0.5~~	Negligible	14.4	14.3	0.0	-0.1	Negligible
BL3	15.7	15.4	15.3~~15.2~~	-0.1~~-0.2~~	-0.1~~-0.4~~	Negligible	15.2	15.2	0.0	-0.1	Negligible
BL4	15.0	14.5	14.6~~13.9~~	0.1~~-0.6~~	0.3~~-1.4~~	Negligible	14.2	13.9	-0.3	-0.6	Negligible
BL5	15.2	14.7	14.8~~14.1~~	0.2~~-0.6~~	0.5~~-1.5~~	Negligible	14.3	14.1	-0.3	-0.7	Negligible
MM1	14.8	14.5	14.5~~14.4~~	0.0~~-0.1~~	0.0~~-0.3~~	Negligible	14.3	14.4	0.1	0.1	Negligible
MM2	16.1	15.7	15.6~~16.0~~	-0.1~~0.3~~	-0.2~~0.7~~	Negligible	15.8	16.0	0.2	0.4	Negligible
MM3	14.7	14.4	14.4~~14.1~~	0.0~~-0.2~~	0.0~~-0.6~~	Negligible	14.2	14.1	0.0	0.0	Negligible
MM4	14.9	14.8	14.8~~14.6~~	0.0~~-0.3~~	0.0~~-0.6~~	Negligible	14.7	14.6	-0.1	-0.2	Negligible
MM5	14.6	14.5	14.6~~14.2~~	0.0~~-0.3~~	0.1~~-0.7~~	Negligible	14.2	14.2	0.0	0.0	Negligible
BL6	16.8	16.4	16.5~~16.3~~	0.0~~-0.1~~	0.1~~-0.3~~	Negligible	16.1	16.3	0.2	0.5	Negligible

Local Study Area: Towcester

~~9.5.141~~9.5.142 Modelled receptors in Towcester study area are detailed in Appendix 9.2, and displayed on Figure 9.15.

~~9.5.142~~9.5.143 Tables 9.29 and 9.30, below, show the impact of the Proposed Development, in Towcester, on annual mean NO_2 and PM_{10} concentrations, respectively.

~~9.5.143~~9.5.144 The data in Tables 9.29 and 9.30 show that the long term concentrations of NO_2 and PM_{10}, at identified sensitive receptors, are anticipated to be well below the AQS in all future scenarios and as such, the Proposed Development is not anticipated to lead to the exceedance of the long term AQSs for NO_2 and $PM_{10.}$

~~9.5.144~~9.5.145 The highest annual mean concentration of NO_2 with the Proposed Development (i.e. 33.9µg.m^{-3}) was recorded at TW1, in both 2021 scenarios. This is 'well below' 60µg.m^{-3} which indicates that the hourly AQS for NO_2 should be met.

~~9.5.145~~9.5.146 The data in Table 9.30 show that the highest annual mean PM_{10} concentration, in any scenario, was 22.9µg.m^{-3}. Based on the formula in ~~9.3.57~~9.5.578 this would lead to 7.9 exceedance days, which is 77% below the 35-day limit.

~~9.5.146~~9.5.147 Impacts on air quality in Towcester are predicted to be beneficial in 2031 and imperceptible in 2021.

~~9.5.147~~9.5.148 The data in Tables 9.29 and 9.30 shows that all changes in annual mean NO_2 and PM_{10} concentrations are predicted to be Negligible, with reference to the EPUK & IAQM Impact Descriptors.

~~9.5.148~~9.5.149 Considering the above, the Proposed Development is expected to have a ***Negligible*** impact on local air quality in Towcester, in 2021, 2031 and in the interim period.

Table 9.29 Predicted concentration (µg.m^{-3}) of NO_2 in the Towcester Study Area.

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E- D	As a % of AQS	
TW1	56.3	33.9	33.9	0.0	0.0	Negligible	17.9	17.7	-0.2	-0.4	Negligible
TW2	31.1	19.2	19.2	0.0	0.0	Negligible	11.0	10.9	-0.1	-0.2	Negligible
TW3	44.1	26.6	26.6	0.0	0.0	Negligible	14.4	14.2	-0.1	-0.3	Negligible

Table 9.30 Predicted concentration (µg.m^{-3}) of PM_{10} in the Towcester Study Area.

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
TW1	22.9	19.9	19.9	0.0	0.0	Negligible	19.1	19.0	-0.1	-0.1	Negligible
TW2	18.3	16.9	16.9	0.0	0.0	Negligible	16.3	16.3	0.0	-0.1	Negligible
TW3	20.5	18.3	18.3	0.0	0.0	Negligible	17.7	17.6	0.0	-0.1	Negligible

Local Study Area: Hartwell

~~9.5.149~~9.5.150 Modelled receptors in the Hartwell study area are detailed in Appendix 9.2, and displayed on Figure 9.16.

~~9.5.150~~9.5.151 Tables 9.31 and 9.32, below, show the impact of the Proposed Development, in Hartwell, on annual mean NO_2 and PM_{10} concentrations, respectively.

~~9.5.151~~9.5.152 The data in Table 9.31 and Table 9.32 show that the long term concentrations of NO_2 and PM_{10}, at identified sensitive receptors, are anticipated to be well below the AQS in all future scenarios and as such, the Proposed Development is not anticipated to lead to the exceedance of the long term AQSs for NO_2 and PM_{10}.

~~9.5.152~~9.5.153 The data in Table 9.31 shows that all modelled NO_2 annual mean concentrations are predicted to be below 60µg.m^{-3} and, therefore, the hourly AQS should be met.

~~9.5.153~~9.5.154 The data in Table 9.32 show that the highest annual mean PM_{10} concentration predicted, in any scenario, was 16.1µg.m^{-3}. Based on the formula in ~~9.3.57~~9.5.57~~8~~ this would lead to 0.35 exceedance days, which is 99% below the 35-day limit.

~~9.5.154~~9.5.155 The data in Tables 9.31 and 9.32 shows that all changes in annual mean NO_2 and PM_{10} concentrations are predicted to be Negligible, with reference to the EPUK & IAQM Impact Descriptors.

~~9.5.155~~9.5.156 Considering the above, the Proposed Development is expected to have a ***Negligible*** impact on local air quality in Hartwell, in 2021, 2031 and in the interim period.

Table 9.31 Predicted concentration (µg.m^{-3}) of NO_2 in the Hartwell Study Area

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E- D	As a % of AQS	
H1	19.4	14.1	14.2	0.0	0.0	Negligible	9.1	9.1	0.0	0.0	Negligible
H2	20.7	15.3	15.3	0.0	0.1	Negligible	9.7	9.7	0.0	0.0	Negligible
H3	23.4	17.5	17.6	0.1	0.2	Negligible	10.8	10.8	0.0	0.1	Negligible
H4	21.3	15.7	15.7	0.0	0.1	Negligible	9.9	9.9	0.0	0.1	Negligible

Table 9.32 Predicted concentration (µg.m^{-3}) of PM_{10} in the Hartwell Study Area.

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
H1	15.6	15.0	15.0	0.0	0.0	Negligible	15.0	15.0	0.0	0.0	Negligible
H2	15.8	15.2	15.2	0.0	0.1	Negligible	15.2	15.2	0.0	0.1	Negligible
H3	16.1	15.5	15.6	0.0	0.1	Negligible	15.5	15.6	0.0	0.1	Negligible
H4	15.8	15.2	15.3	0.0	0.1	Negligible	15.2	15.3	0.0	0.1	Negligible

Local Study Area: Grafton Regis and Potterspury

9.5.1569.5.157 Modelled receptors in the Grafton Regis and Potterspury study area are detailed in Appendix 9.2, and displayed on Figure 9.17.

9.5.1579.5.158 Tables 9.33 and 9.34, below, show the impact of the Proposed Development, in Grafton Regis and Potterspury, on annual mean NO_2 and PM_{10} concentrations, respectively.

9.5.1589.5.159 The data in Tables 9.33 and 9.34 show that the long term concentrations of NO_2 and PM_{10}, at identified sensitive receptors, are anticipated to be well below the AQS in all future scenarios and as such, the Proposed Development is not anticipated to lead to the exceedance of the long term AQSs for NO_2 and $PM_{10.}$

9.5.1599.5.160 The data in Table 9.33 shows that all modelled NO_2 annual mean concentrations are predicted to be below 60µg.m^{-3} and, therefore, the hourly AQS should be met.

9.5.1609.5.161 The data in Table 9.34 show that the highest annual mean PM_{10} concentration predicted, in any scenario, was 17.8.µg.m^{-3}. Based on the formula in 9.3.587 this would lead to 1.25 exceedance days, which is 96% below the 35-day limit.

9.5.1619.5.162 The data in Table 9.33 and Table 9.34 show that all changes in annual mean NO_2 and PM_{10} concentrations, in Grafton Regis are predicted to be Negligible, in both 2021 and 2031, with reference to the EPUK & IAQM Impact Descriptors.

9.5.1629.5.163 Considering the above, the Proposed Development is expected to have a ***Negligible*** impact on Grafton Regis and Potterspury, in 2021, 2031 and in the interim period.

Table 9.33 Predicted concentration (µg.m^{-3}) of NO_2 in the Grafton Regis and Potterspury Study Area.

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
GF1	-	8.2	8.2	0.0	0.1	Negligible	6.9~~7.6~~	7.6	0.7	1.8	Negligible
GF2	-	8.0	8.0	0.0	0.1	Negligible	6.8~~7.4~~	7.4	0.6	1.6	Negligible
P1	-	8.0	8.0	0.0	0.0	Negligible	7.0~~6.9~~	6.9~~7.0~~	-0.1	-0.1	Negligible
P2	-	8.1	8.1	0.0	0.0	Negligible	7.1~~7.0~~	7.0~~1~~	-0.1	-0.1	Negligible

Table 9.34 Predicted concentration (µg.m^{-3}) of PM_{10} in the Grafton Regis and Potterspury Study Area

Receptor	2018 Baseline	2021 Without	2021 With	Change due to Development		IAQM Impact Descriptor	2031 Without	2031 With	Change due to Development		IAQM Impact Descriptor
	A	B	C	C-B	As a % of AQS		D	E	E-D	As a % of AQS	
GF1	-	16.8	16.9	0.1	0.2	Negligible	16.4	17.8	1.4	3.4	Negligible
GF2	-	16.5	16.6	0.1	0.2	Negligible	16.1	17.4	1.2	3.1	Negligible
P1	-	16.6	16.6	0.0	0.0	Negligible	16.4	16.3	-0.1	-0.3	Negligible
P2	-	16.8	16.8	0.0	0.0	Negligible	16.6	16.5	-0.1	-0.3	Negligible

Overall Impact in Local Study Areas – Summary

~~9.5.163~~9.5.164 Table 9.35 summarises the overall impact of the Proposed Development on annual mean NO_2 and PM_{10} concentrations in each study area.

Table 9.35: Overall impact of Proposed Development in each study area

Study area	Overall significance of impact (NO_2)			Overall significance of impact (PM_{10})		
	2021	**Interim**	**2031**	**2021**	**Interim**	**2031**
AQMA 1	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
AQMA 5	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
AQMA 4	**Slight Adverse**	**Slight Adverse**	Negligible	Negligible	Negligible	Negligible
AQMA 2	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
AQMA 6	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
AQMA 8	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
AQMA 3	**Slight Beneficial**	Negligible	Negligible	Negligible	Negligible	Negligible
Roade & WLC	Negligible	**Slight Beneficial**	**Slight Beneficial**	Negligible	Negligible	Negligible
Blisworth & Milton Malsor	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Towcester	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Hartwell	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
Grafton Regis and Potterspury	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible

~~9.5.164~~9.5.165 The Proposed Development is anticipated to have a ***Slight Adverse*** impact on annual mean NO_2 concentrations in AQMA No.4 and a ***Slight Beneficial*** impact on annual mean NO_2 in AQMA No.3, in 2021.

~~9.5.165~~9.5.166 By 2031, the impact of the Proposed Development on annual mean PM_{10} and NO_2 is considered ***Negligible*** in all study areas, except within the Roade and WLC study area, where an overall ***Slight Beneficial*** impact on annual mean NO_2 is expected due to the implementation of the bypass. The overall impact on annual mean PM_{10}, in Roade, is overall ***Negligible*** in 2031, even when considering that a *Slight Beneficial* impact is predicted at one receptor.

~~9.5.166~~9.5.167 In the interim period between 2021 and 2031, improvements to the vehicle fleet will lessen the impact of changes to traffic flows. As such, it is considered unlikely that overall impacts will become more significant, ~~i.e.~~e.g. changes from *Slight Beneficial* to *Moderate* Beneficial or from *Slight Adverse* to *Moderate Adverse* in this period.

~~9.5.167~~9.5.168 The ***Slight Adverse*** impact on annual mean NO_2 predicted in AQMA No.4 is considered likely to remain significant for much of the interim period; however, the impact in AQMA No.~~3~~ 4 is predicted to become overall ***Negligible*** in the interim due to further re-distribution of traffic flows.

9.5.1689.5.169 It is anticipated that upon construction of the A508 bypass at Roade, Roade itself will see a *Moderate Beneficial* Impact, yet the West Lodge Cottages and properties in proximity to the bypass are likely to see *Slight Adverse* impacts and as such, the overall significance for that study area is considered to be overall ***Slight Beneficial*** in the interim.

National Scale Impacts

9.5.1699.5.170 Based on an assessment of the changes to national HGV routes which could result from introduction of the Northampton Gateway SRFI it is anticipated that the Proposed Development could lead to a reduction of 969 HGV loads per day on UK roads, which equates to over 92 million HGV miles per year. Details of this example are included in the Transport Chapter (Chapter 12).

9.5.1709.5.171 Splitting the reduction in HGV flows between the ports of Felixstowe, London and Southampton, on a pro-rata basis based on current tonnage into and out of each port, and between Glasgow, Leeds and Cardiff based on anticipated train movements, results in an anticipated reduction in
HGV flows of over 100 annual average daily total (AADT) movements in or adjacent to at least 57 AQMAs (listed in Appendix 9.10).

9.5.1719.5.172 The Proposed Development will, therefore, contribute to improving air quality at all of those identified AQMA locations. Using the significance criteria for local study areas, the impact on each AQMA would likely be *Negligible*, as the reductions in AADT flows only form a very small fraction of total AADT flows on these roads.

9.5.1729.5.173 Table 9.36, below, summarises the estimated reduction in NO_2 and PM_{10} emissions and its corresponding 'value' to society, based on the damage cost approach, between 2021 and 2035. Further details of the damage cost approach, including inputs and assumptions, are presented in Appendix 9.6.

Table 9.36 Reduction in Pollutant Emissions between 2021 and 2035 and estimated value of this reduction

Year (s)	Reduction in emissions (tonne)		Value (£)		
	NO_x	PM_{10}	Lower estimate	Central estimate	Upper estimate
2021	22.2	3.0	£321,786	£639,600	£943,500
2022	23.6	3.8	£370,739	£716,198	£1,043,885
2023	24.5	4.6	£415,530	£782,689	£1,128,244
2024	25.2	5.4	£459,065	£846,094	£1,207,690
2025	26.1	6.2	£503,599	£911,882	£1,290,895
2026	27.4	7.1	£552,461	£988,156	£1,390,713
2027	29.1	7.9	£603,901	£1,070,618	£1,500,310
2028	31.0	8.7	£658,060	£1,159,539	£1,620,075
2029	33.1	9.6	£713,833	£1,252,374	£1,746,045
2030	35.4	10.4	£771,546	£1,349,946	£1,879,537
2031-2035	191.4	56.2	£4,170,518	£7,297,003	£10,159,659
Sum (2021-2035)	**469.1**	**122.9**	£9,541,038	£17,014,100	£23,910,553

~~9.5.173~~9.5.174 Between 2021 and 2035, the Proposed Development is predicted to result in a reduction in NO_x emissions of 469.1 tonnes and a reduction in PM_{10} emissions of 122.9 tonnes.

~~9.5.174~~9.5.175 This reduction in emissions will be spread over a wide area, including within AQMAs on the strategic road network.

~~9.5.175~~9.5.176 Using an adapted Defra damage cost approach this reduction in emissions could result in a benefit to society of a value ranging between £9.5 million and £24.0 million, with a central estimate of £17.0 million, between 2021 and 2035.

Compliance with UK National Plan and EU limit Values.

~~9.5.176~~9.5.177 The SL-PCM model has been used to assess whether the Proposed Development is going to delay compliance of the East Midlands zone with the UK National Plan and EU LVs.

~~9.5.177~~9.5.178 The A45 was identified in the UK National Plan to be the road link at most risk of non-compliance in 2021, in the East Midlands zone, in a scenario in which CAZ measures have been implemented.

~~9.5.178~~9.5.179 The maximum NO_2 concentration results using the SL-PCM model are presented in Table 9.37 for the following traffic scenario:

- SL-PCM (DfT) baseline (with CAZ measures) + NSTM2 development contribution

Table 9.37: Annual Mean NO_2 Concentration on A45 (UK Plan assessed road)

Traffic scenario	Baseline 2021 ($\mu g.m^{-3}$)	With Development 2021 ($\mu g.m^{-3}$)	Change ($\mu g.m^{-3}$)
SL-PCM (DfT) baseline(with CAZ measures) + NSTM2 development contribution ~~(with CAZ +additional measures)~~	36.0	36.8	0.8

~~9.5.179~~ The results show that the Proposed Development is predicted to increase annual mean NO_2 concentrations by $0.8\mu g.m^{-3}$ at the A45 location. The total concentration 'With Development', in 2021, is predicted to be $36.8\mu g.m^{-3}$, which is below the EU LV of $40\mu g.m^{-3}$.

9.5.180

9.5.181 The location and zone will, therefore, continue to be in compliance with both the UK National Plan and EU objectives.

9.6 MITIGATION

Construction

9.6.1 The Greater London Authority guidance, which is used as a benchmark across the UK, suggests a number of best practice measures that should be adopted in order to minimise impacts from dusts and fine particles; these include:

- cutting, grinding and sawing must not be conducted on-site and pre-fabricated material and modules must be brought in where possible;
- where such work must take place, water suppression must be used to reduce the amount of dust generated;
- skips, chutes and conveyors must be completely covered and, if necessary enclosed to ensure that dust does not escape;
- no burning of any materials must be permitted on site;
- any excess material must be reused or recycled on-site in accordance with appropriate legislation;
- developers must produce a waste or recycling plan;
- following earthworks, exposed areas and soil stockpiles must be re-vegetated to stabilise surfaces, or otherwise covered with hessian or mulches;
- stockpiles must be stored in enclosed or bunded containers or silos and kept damp where necessary;
- hard surfaces must be used for haul routes where possible;
- haul routes must be swept/washed regularly;
- vehicle wheels must be washed on leaving the site;
- all vehicles carrying dusty materials must be securely covered; and
- delivery areas, stockpiles and particularly dusty items of construction plant must be kept as far away from neighbouring properties as possible.

9.6.2 In addition, the IAQM lists recommended mitigation measures for low, medium and high Dust Impact Risks. The highly recommended measures, based on the Construction Phase dust assessment are included in Appendix 9.8 of this report.

9.6.3 The highest risk activities will be avoided in the areas of the Main Site closest to sensitive receptors. These are shown as a Priority Dust Mitigation Zone on Figures 9.1 and~~,~~ 9.2~~, 9.3 and 9.4~~. Where dust generation cannot be avoided in areas close to neighbouring properties, additional mitigation measures will be put in place, such as: windbreaks, sprinklers, and/or time/weather condition limits on the operation of some items of plant or the carrying out of potentially dust- generating activities.

9.6.4 The measures listed above and in Appendix 9.8 of this report have used to contribute to part of the CEMP which is submitted as part of the application, and which provides a framework for future detailed phase specific CEMPs (see document reference 6.11). ~~—~~After the implementation of the CEMP, the significance of effects from each phase of the construction programme will be reduced.

Operational

Aggregates Terminal

9.6.5 The risk of dust emissions from the operation of the Proposed Development will be mitigated through a range of standard and best practice measures, referred to in Appendix 9.8. Some of these are similar to those outlined in 9~~.3.278~~ .6.1 in the context of the construction effects, with the most relevant practices to be deployed being the water suppression of any stockpiles of material (where needed), wheel washing of vehicles on exit, and the cleaning and dampening of~~f~~ haul routes.

Road Emissions

9.6.6 A Framework Travel Plan and Public Transport Strategy have been produced for the Proposed Development, and include a number of measures to encourage travel by a range of modes other than the private car. These will align with NBC's Low Emissions Strategy and wider sustainability measures related to encouraging and enabling modal shift to low emission transport. These include enabling the adoption of zero emission electric vehicles through charge point provision, providing improved bus services, adding a new dedicated express bus service, designating motorcycle and priority car share bays, as well as other modal shift support initiatives.

9.6.7 An additional important issue in assessing the operational effects of the Proposed Development is the strategic context of the wider air quality benefits delivered by a shift from road to rail. The assessment suggests that the SRFI could remove in excess of 92 million HGV miles from the national road network as a result of potential changes of patterns to existing freight routes, with a shift from road to rail (See Chapter 12). This is predicted to result in a reduction in NO_x and PM_{10} emissions totalling 469.1 tonnes and 122.9 tonnes over a 15-year period.

9.6.8 As described above, these beneficial impacts will be seen across a wide area, including within other AQMAs on the strategic road network and within the East Midlands zone.

9.6.9 As referred to above, overall the Proposed Development is expected to have a largely Negligible impact on both NO_2 and PM_{10} locally. Some significantly adverse local impacts are, however, anticipated in Northampton's AQMA No.4, in 2021 and in the interim period.

9.6.10 The potential to reduce the significance of adverse impacts in AQMA No.4 have been discussed with Northampton Borough Council, and the detail is being explored further. Measures being considered include supporting the introduction of cleaner Euro VI class buses for the dedicated SRFI express bus service. The applicant has also indicated a willingness to make a contribution to enable delivery of new electric vehicle charging points or other low emission initiatives for Northampton in support of the Council's Low Emissions Strategy.

9.6.11 As the ~~SFRI~~SRFI HGV traffic will form only a small fraction of total AADT flows through this AQMA, it is considered that proposed mitigation strategies should focus on non-HGV measures. As such the mitigation strategy focuses on encouraging and enabling modal shift toward adopting vehicles with cleaner engines and providing more frequent bus services to support reduced emissions within the AQMAs.

9.6.12 Roade is predicted to experience a *Negligible Adverse* impact due to the early operation of the Proposed Development. However, the Proposed Development includes a bypass, which will be built within two years of the first occupation of the site; this will result in overall *Slight Beneficial* Impacts in the Roade and West Lodge Cottages Study area.

9.6.13 Notwithstanding the above, it is not considered that there is a need for extensive, off-setting measures associated with total emissions as the Proposed Development is anticipated to be air quality positive, in that total emissions nationwide, as a result of the Proposed Development, will be ~~negative~~reduced.

9.6.14 Furthermore, many of the improvements to the local highway network, inherent to the Proposed Development, will likely reduce congestion and have a positive air quality impact beyond that described in this assessment.

9.7 RESIDUAL EFFECTS

Construction

9.7.1 The construction of the Proposed Development could potentially cause emissions of dust that might pose a nuisance to adjacent property. However, by adopting appropriate mitigation measures in the CEMP to reduce any such emissions and their potential effect on the surrounding area, there are expected to be no significant nuisance effects.

Operational

9.7.2 After the implementation of best practice measures, the residual risk of dust soiling due to the operation of the Aggregate Terminal is expected to be *Negligible*.

9.7.3 It is anticipated that the development will have a *Negligible Beneficial* impact on air quality at a regional and national scale, as a result of the transfer of freight from road to rail. This wider, albeit small-scale effect across a large geographic area is one of the objectives of the national policy of encouraging a shift from road to rail. The cumulative effects of increasing modal shift, including that enabled by increasing the network of SRFIs, would clearly become more significant nationally with time.

9.7.4 These strategic impacts are of direct relevance in the context of the NPSNN policy on air quality which considers SRFIs ~~in part~~ with regard to the contribution they make to aiding efforts to meet the required air quality standards in non-compliant zones.

9.7.5 The Proposed Development will result in changes in traffic flows on the local road network. The Proposed Development is anticipated to have a *Negligible* impact on local air quality in most study areas between 2021 and 2031.

9.7.6 It is, however, considered that an overall Slight Adverse impact may persist in Northampton's AQMA No.4 in 2021 and the interim period. The adverse impacts are isolated to residential dwellings close to junctions and slow moving traffic where air quality is already poor. However, even in the absence of mitigation measures, the impact in 2031 is considered *Negligible*. As such, any significantly adverse impact as a result of the Proposed Development is only temporary.

9.7.7 The mitigation measures suggested above will encourage a modal-shift and help mitigate any temporary impacts of the Proposed Development in AQMA No.4.

9.7.8 By 2031, there are not predicted to be any significantly adverse impacts on annual mean NO_2 or PM_{10} at any location within Northampton or South Northamptonshire.

9.8 CUMULATIVE EFFECTS

Construction Phase

9.8.1 There are proposals for another SRFR~~R~~I terminal (Rail Central) on the land directly west of the main Northampton Gateway development. If both schemes progress it is likely that there would be some overlap in the construction of both developments and as such there would be potential for cumulative effects.

9.8.2 Figure 9.18 shows the 350m buffer lines of the two developments. The two highlighted green areas in Figure 9.18 are sensitive areas that both buffer lines overlap. The area to the north includes residential dwellings in the village of Milton Malsor while the area to the south includes residential dwellings and the Roade Cutting SSSI. However, as shown in Plate 9.1, the predominant wind direction is from the south west and as such, it is unlikely that construction generated dust from the Proposed Development and Rail Central will be blown into these areas. Therefore, the overall cumulative effects from construction are considered to be Negligible.

Operational Phase

9.8.3 As referred to above, the Transport Model used to prepare the data which forms the basis of the air quality assessments takes account of all of the commitments and allocations to deliver the growth planned by the Joint Core Strategy (and beyond). Therefore, in using the projected future traffic levels from the model, this assessment has already considered the cumulative effects of the Proposed Development and committed developments, including the urban extensions at Collingtree, and South of Brackmills.

9.8.4 However, the transport model included another scenario (J3) which separated out the impact of the Rail Central Development. Appendix 9.9 presents the impacts of the Proposed Development in a scenario in which both the Northampton Gateway and Rail Central Schemes are consented and operational. Any current assessment is in the absence of a highway mitigation scheme developed specifically to accommodate both developments. However, assumptions can be made about a possible combined package of highways improvements (as in this assessment using the March 2018 emerging information about the developing Rail Central proposals).

9.8.5 There was no change in significance at any receptor due to the combined operation of the Rail Central and Northampton Gateway schemes; as such, the conclusions reached for the scheme in the absence of Rail Central remain valid and the cumulative impact ~~can therefore be~~of both schemes are also considered ***Negligible*** in significance, based on current assumptions.

9.9 CONCLUSIONS

9.9.1 This chapter contains information about the assessment of the potential air quality impacts of the Northampton Gateway project.

9.9.2 The Proposed Development is not within an AQMA, but there are several AQMAs on the road network close to the site. Existing air quality data held by the local authorities has been used to help establish a baseline position, with additional monitoring data also collected to validate and further advance the evidence base regarding local air quality.

9.9.3 The existing air quality in the location of the Proposed Development has been shown to be within the standards and objectives set out in the UKAQS, and in the vast majority of the local area the monitoring data confirms that air quality is good. There are, however, pockets of poor air quality in both South Northamptonshire and Northampton where AQMAs have been declared.

9.9.4 The Main Site consists of the strategic rail freight interchange (SRFI) site and access from the A508. Given the nature of the Proposed Development, as an SRFI, it is expected to have wide reaching effects in traffic movements affecting many parts of the UK as a result of the transfer of freight from road to rail. Overall the development could lead to nationwide HGV reductions of 969 loads per day equivalent to 92 million HGV miles reduced per year based on a worked example of realistic changes to existing distribution patterns.

9.9.5 Standard best practice measures associated with the operation of the proposed Aggregates Terminal will also be deployed to reduce the potential for significant off-site effects from dust.

9.9.6 The construction of the Proposed Development could give rise to emissions of dust. However, by adopting appropriate mitigation measures to reduce any such emissions within the CEMP, there should be no significant effects caused by dust.

9.9.7 The likely impacts on AQMAs and other receptors have been assessed using the Transport modelling data. Future impacts have been assessed assuming that background air quality and emissions fall in line with the predictions made by Defra. However, there has been no consideration of the potential improvements due to the Proposed Development's Travel Plan which in practice will also help reduce reliance on car travel and therefore reduce transport emissions further. This is pertinent to the central Northampton AQMAs~~,~~ as the proposed highways improvements will reduce emissions from private cars and increase the use of cleaner busses, thereby reducing emissions from these transport modes which are the current cause of the most significant air quality impacts ~~to be caused by such vehicles~~in the AQMAs.

9.9.8 The Proposed Development is anticipated to have an overall *Negligible* impact on local annual mean PM_{10} concentrations in all years assessed.

9.9.9 The Proposed Development is anticipated to have a *Negligible* impact on annual mean NO_2 concentrations in all years, in most study areas. However, some locally significant, but temporary, impacts are predicted in 2021 and the interim period ahead of key mitigation measures being in place.

9.9.10 The Proposed Development is predicted to have a *Slight Adverse* impact on annual mean NO_2 concentrations in AQMA No.4, in 2021 and the interim period and a *Slight Beneficial* impact in AQMA No.3 in 2021.

9.9.11 By 2031, impacts on annual mean NO_2 in both of these AQMA are predicted to be *Negligible* in significance, reflecting the temporary nature of these impacts.

9.9.12 However, upon implementation of the proposed bypass in Roade in the interim period, impacts are predicted to be overall *Slight Beneficial.* This beneficial impact is predicted to remain significant in 2031, reflecting a more permanent significant beneficial impact. It is worth noting that the absolute reduction in pollution concentrations in Roade is large, and impacts are only considered of *Slight* benefit as baseline air quality is already good.

9.9.13 In 2031, when considering the cumulative impact of the Proposed Development and Rail Central (based on the available emerging information and in the absence of a highway mitigation scheme developed specifically to accommodate both developments) there was no change in significance at any receptor. As such, the impact of the Proposed Development on the local area is unlikely to change in a scenario where Rail Central is also operational.

9.9.14 The National Plan SL-PCM model was used to determine that the Proposed Development will not result in an exceedance of the EU limit value for annual mean NO_2. As such, the Proposed Development will not result in the non-compliance, or delay the compliance, of the East Midlands zone with regard to the current UK National Plan and EU legislation.

9.9.15 The Proposed Development is predicted to result in a 469.1 tonne reduction in emissions of oxides of nitrogen (NO_x) and a 122.9 tonne reduction in fine particulate matter (PM_{10}) emissions over a 15 year period beginning in 2021. Using the damage cost approach; this could have a benefit to society of up to £24 million.

9.9.16 Local impacts during the operational phase will be minimised through the implementation of a Travel Plan which will encourage a modal shift away from private cars and towards public transport and low emissions vehicles. However, no account has been taken for this in the traffic data used in this air quality assessment. This was in order to ensure a robust assessment. Considering the above, the Proposed Development will meet the requirements of the NPSNN and as such, air quality effects do not represent a barrier to the planning process.

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9.14 IAQM, 2014, Guidance on the assessment of dust from demolition and construction.

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9.17 Defra, 2015, Streamlined PCM Technical Report (v2.1)

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9.20 Natural England, 1986, Roade Cutting SSSI.

9.21 Air Pollution Information System (APIS), 2014, Nitrogen Deposition: Standing Open Water and Canals [http://www.apis.ac.uk/node/983]

9.22 Defra, 2015, Valuing impacts on air quality: Updates in valuing changes in emission of Oxides of Nitrogen (NOx) and concentrations of Nitrogen Dioxide (NO2)

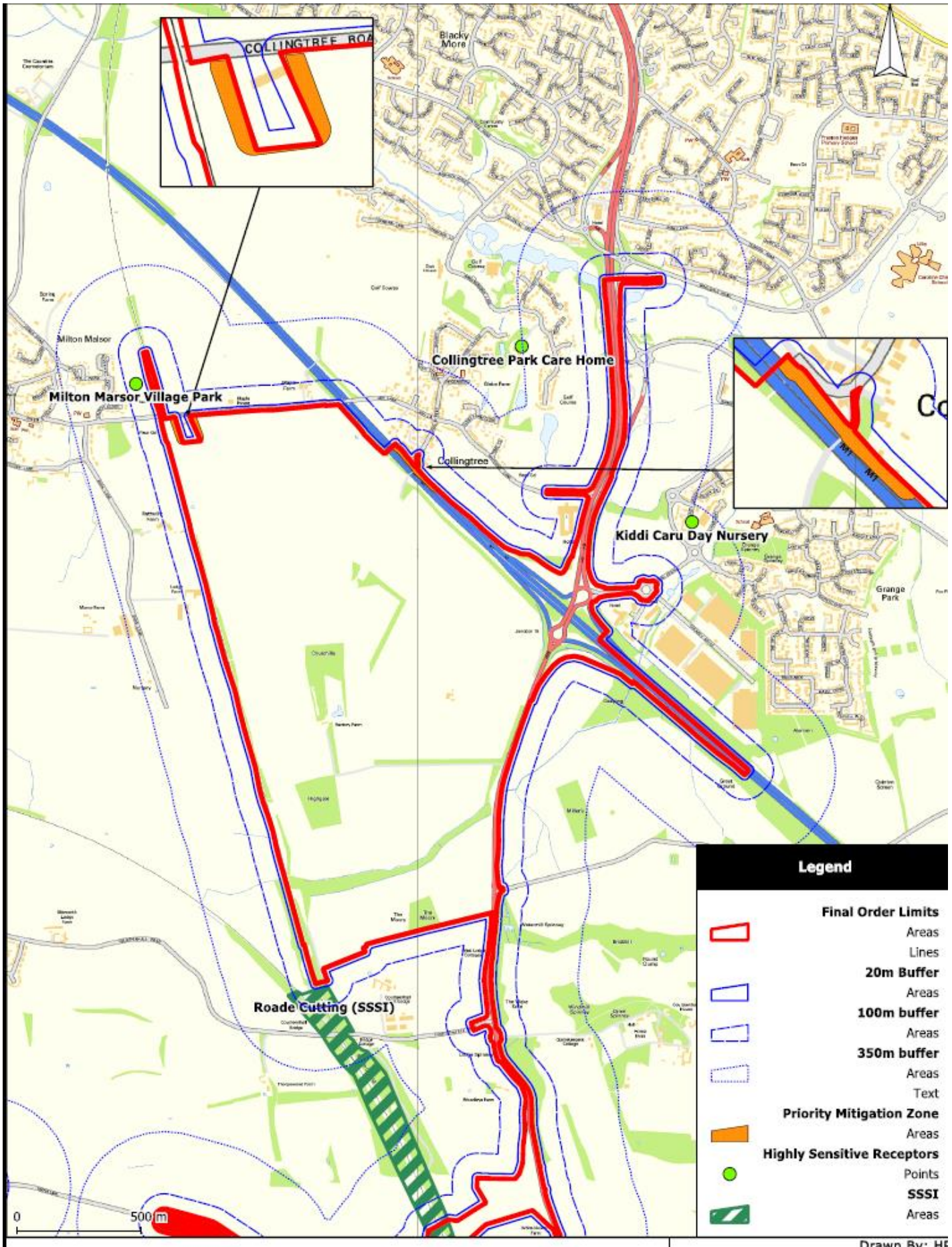

Figure 9.1: Northampton Gateway Construction Phase Receptors

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Drawn By: HR
Date: 22/02/2019

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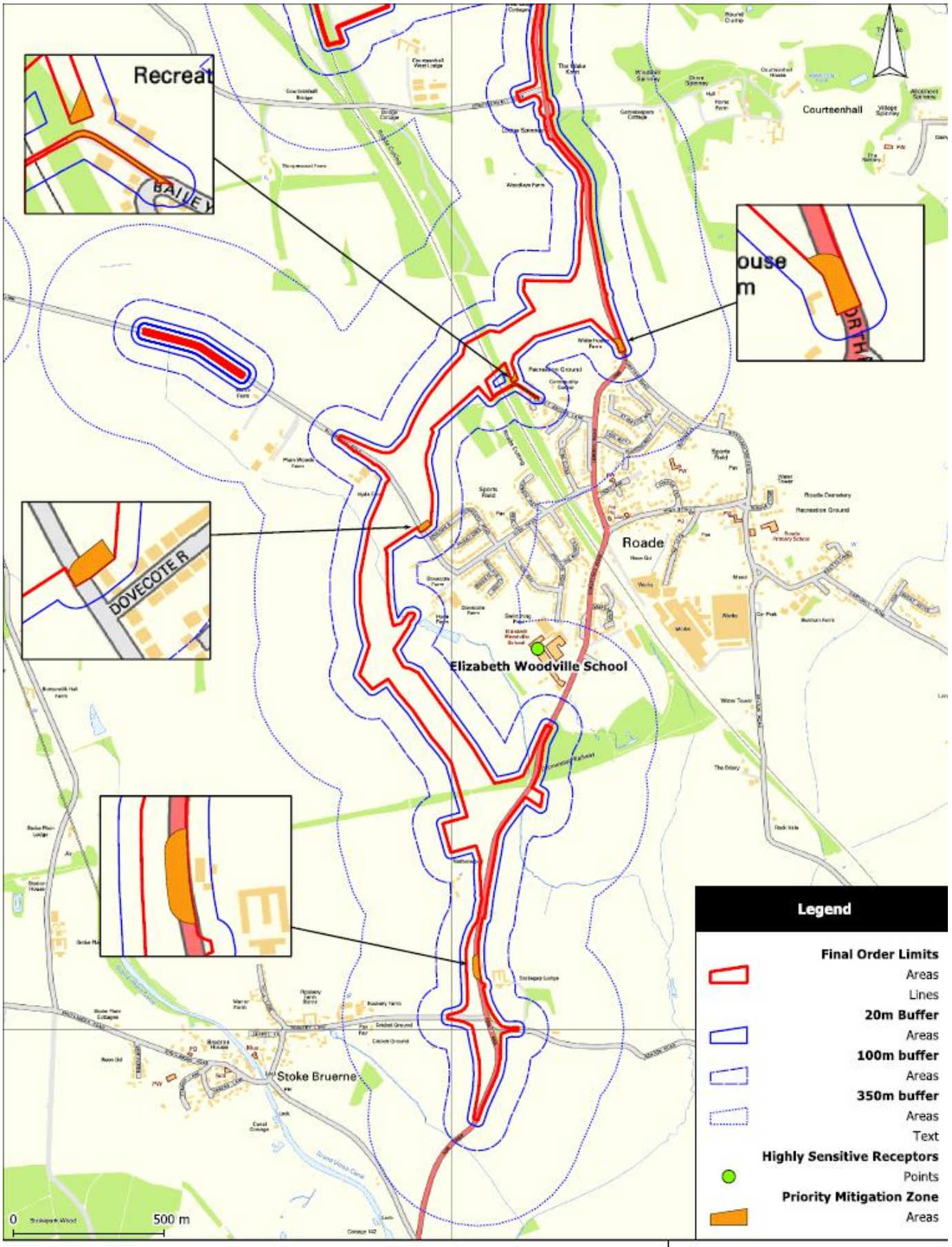

Figure 9.2: Roade Bypass Construction Phase Receptors

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Date: 22/02/2019

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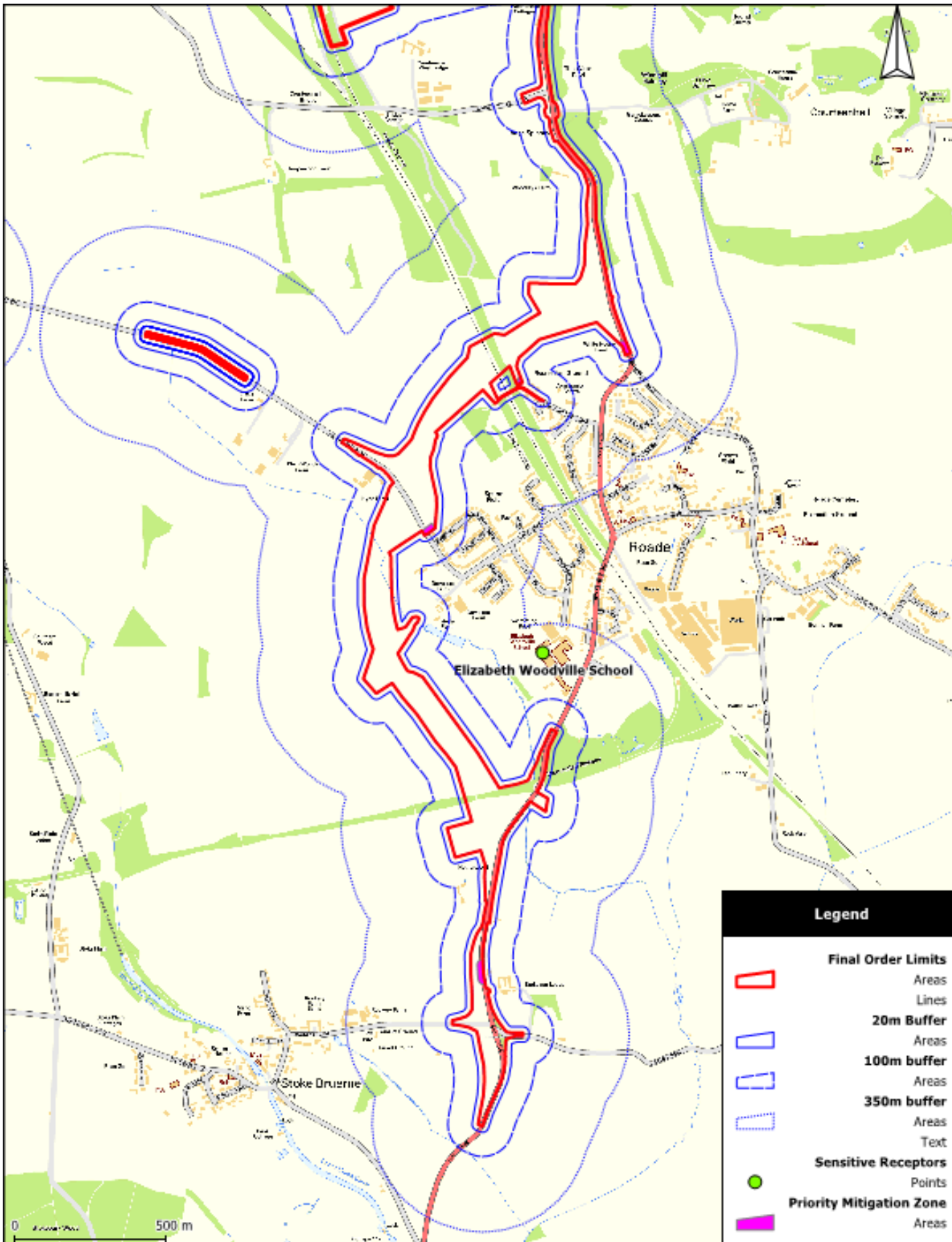

Figure 9.2: Roade Bypass Construction Phase Receptors

Drawn By: HP
Date: 02-May-18

ROXHILL

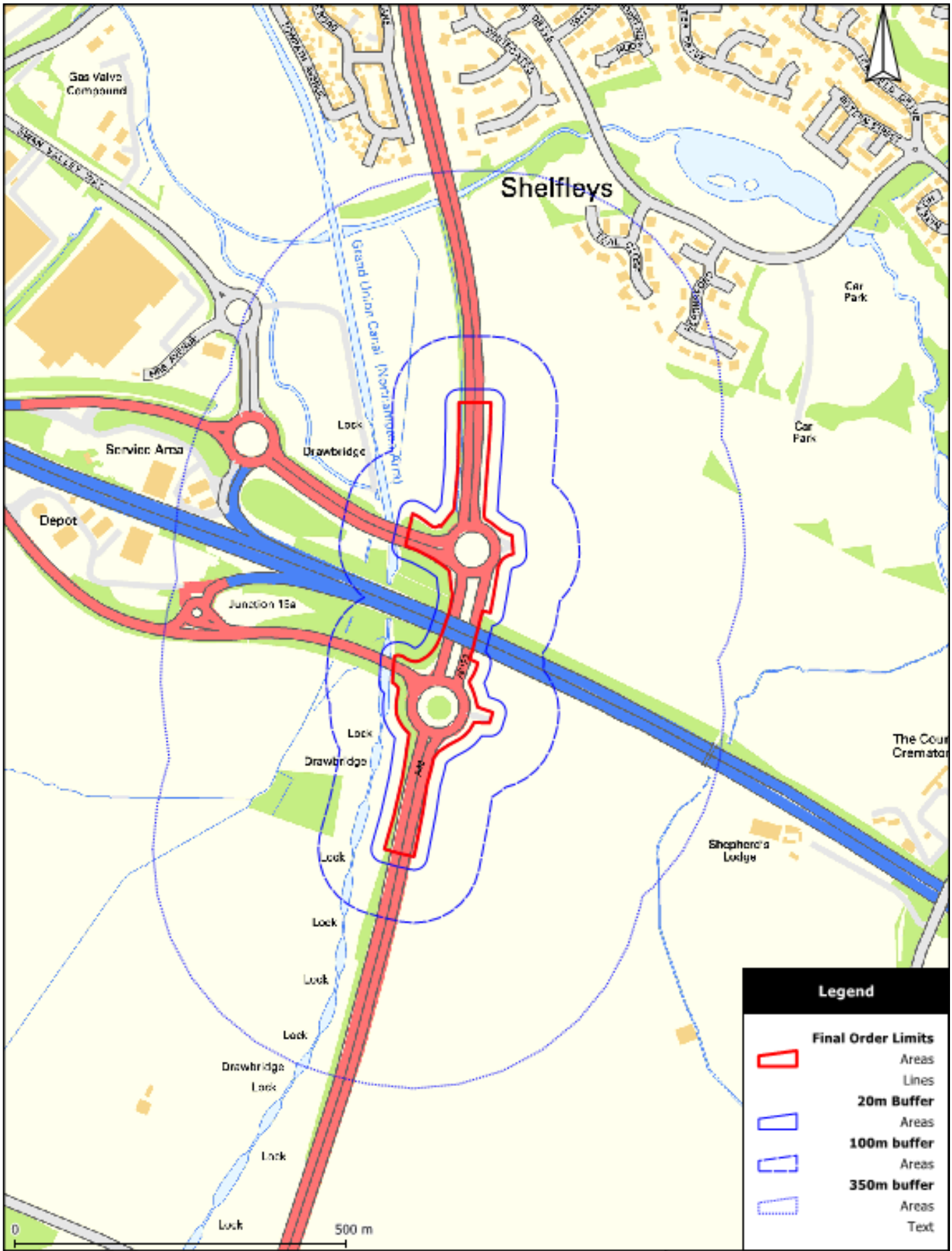

Figure 9.3: J15a Construction Phase Receptors

Drawn By: HP
Date: 01/05/2018

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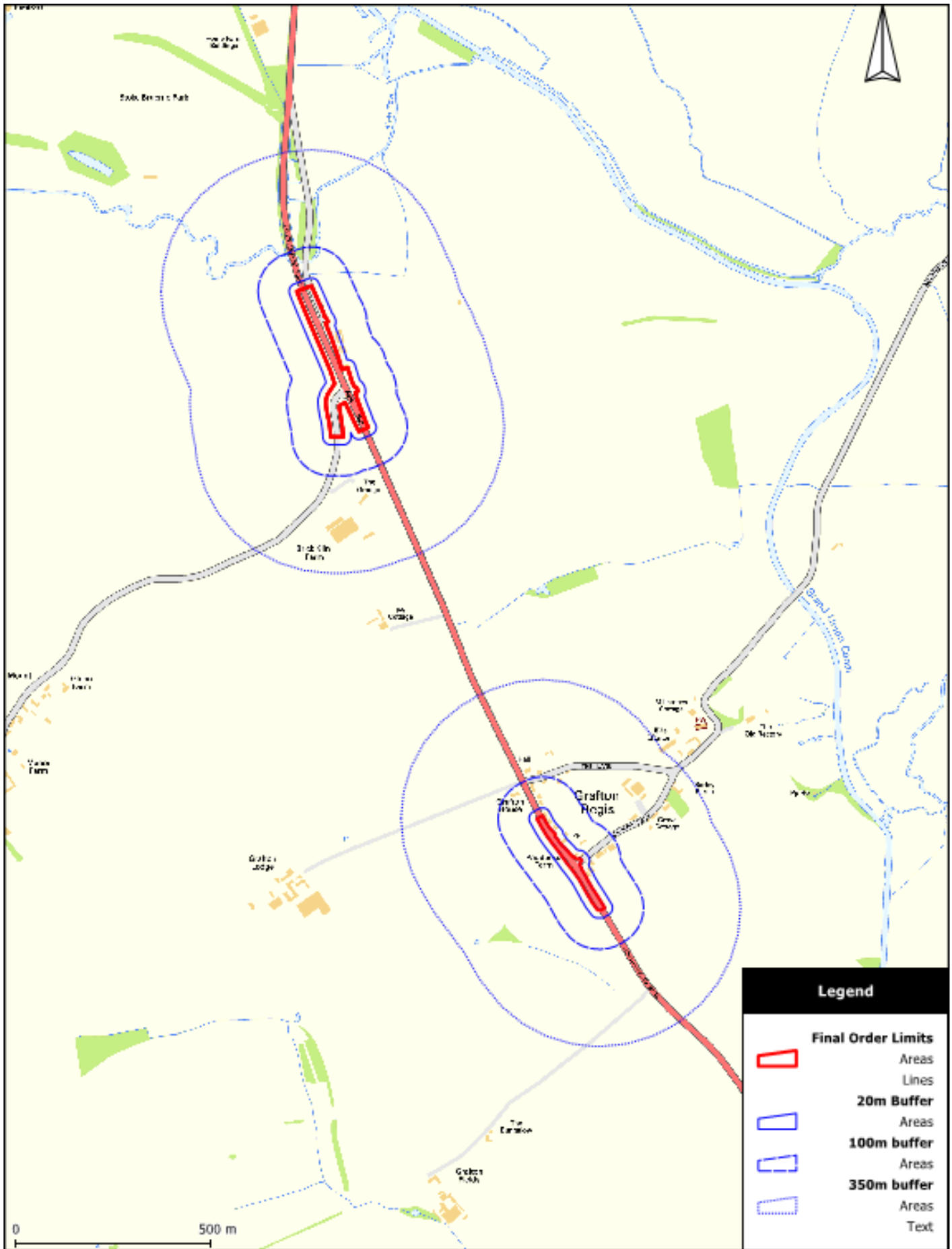

Figure 9.4: A508 Corridor Construction Phase Receptors

Drawn By: HP
Date: 01/05/2018

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Figure 9.5: Aggregate Terminal Operational Dust Receptors

Drawn by: HP
Date: 03-May-18

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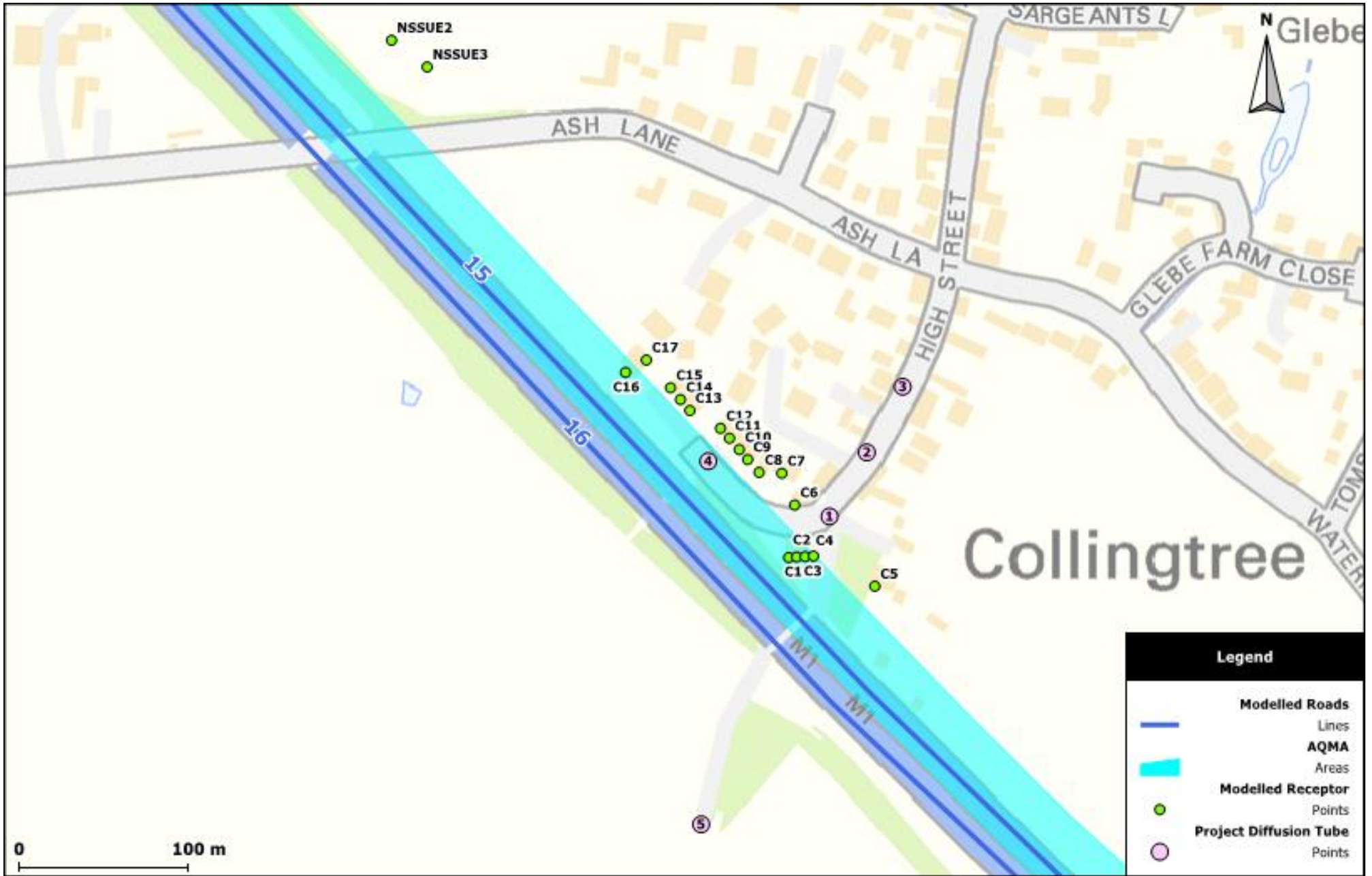

Figure 9.6: Local Operational Impacts - Northampton AQMA No.1 and NSSUE

ROXHILL

Drawn by: HP
Date: 02-May-18

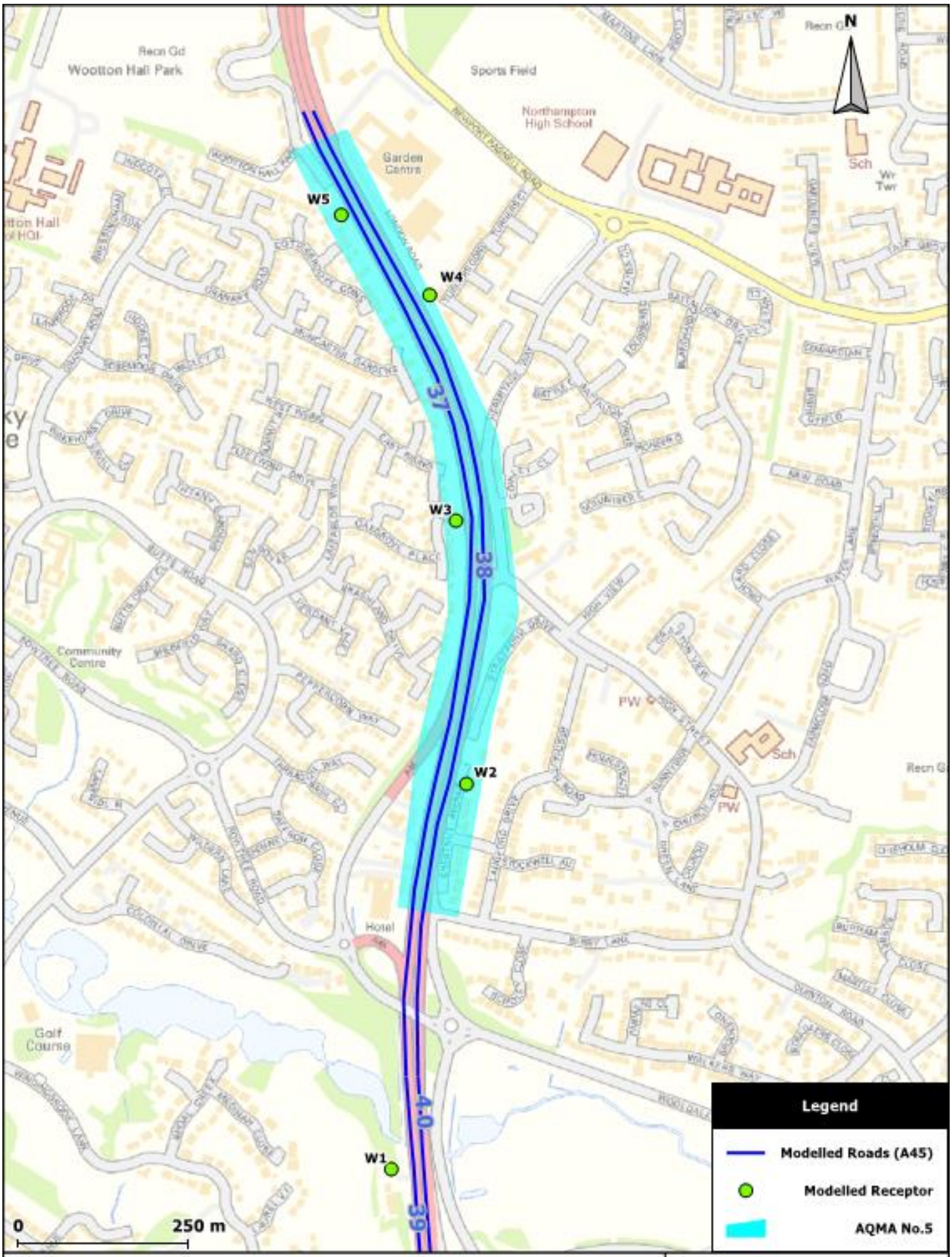

Figure 9.7: Local Operational Impacts - Northampton AQMA No.5, Wootton

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Date: 02/01/2019

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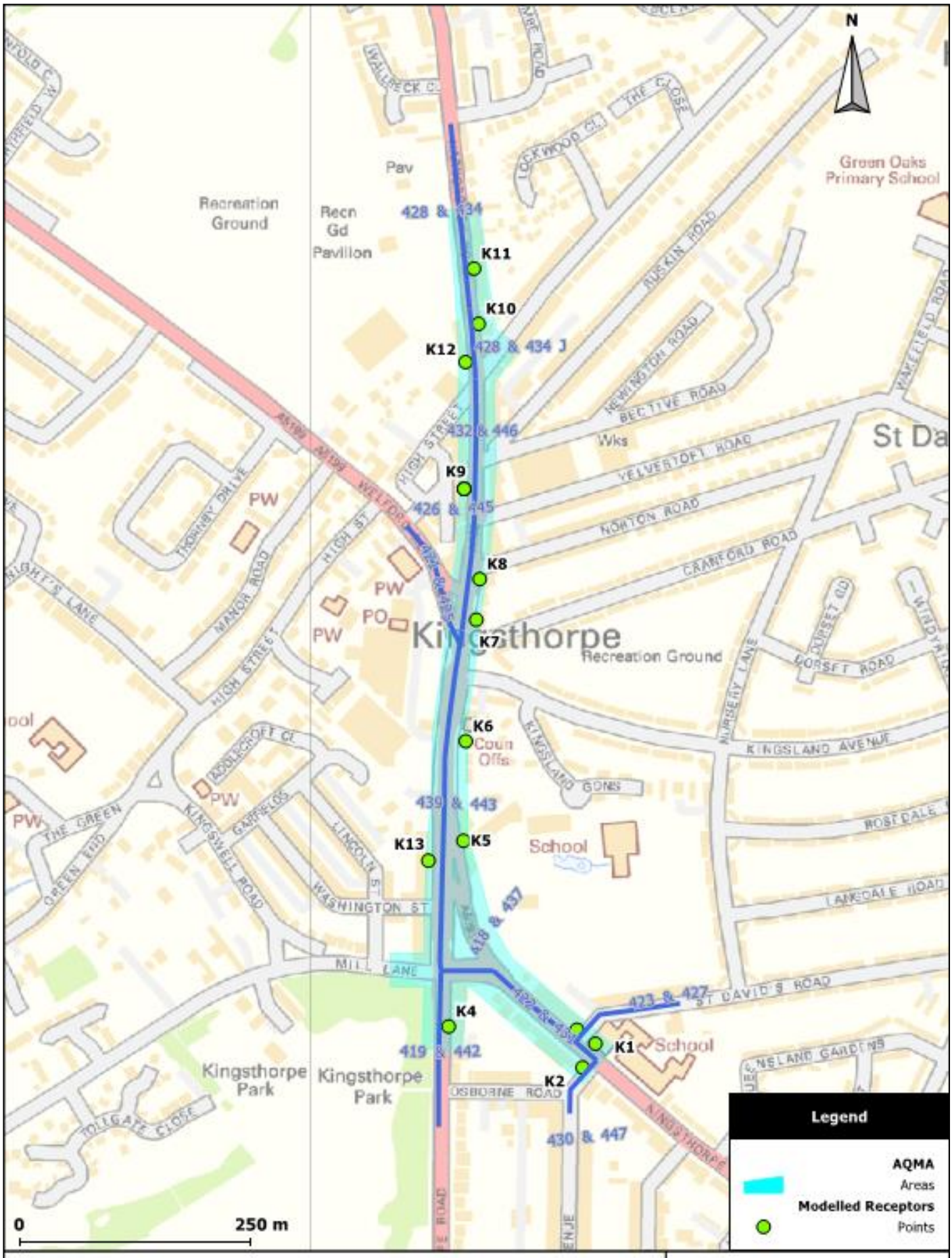

Figure 9.8: Local Operational Impacts - Northampton AQMA No.4, Kingsthorpe

Drawn by: HP
Date: 02/01/2019

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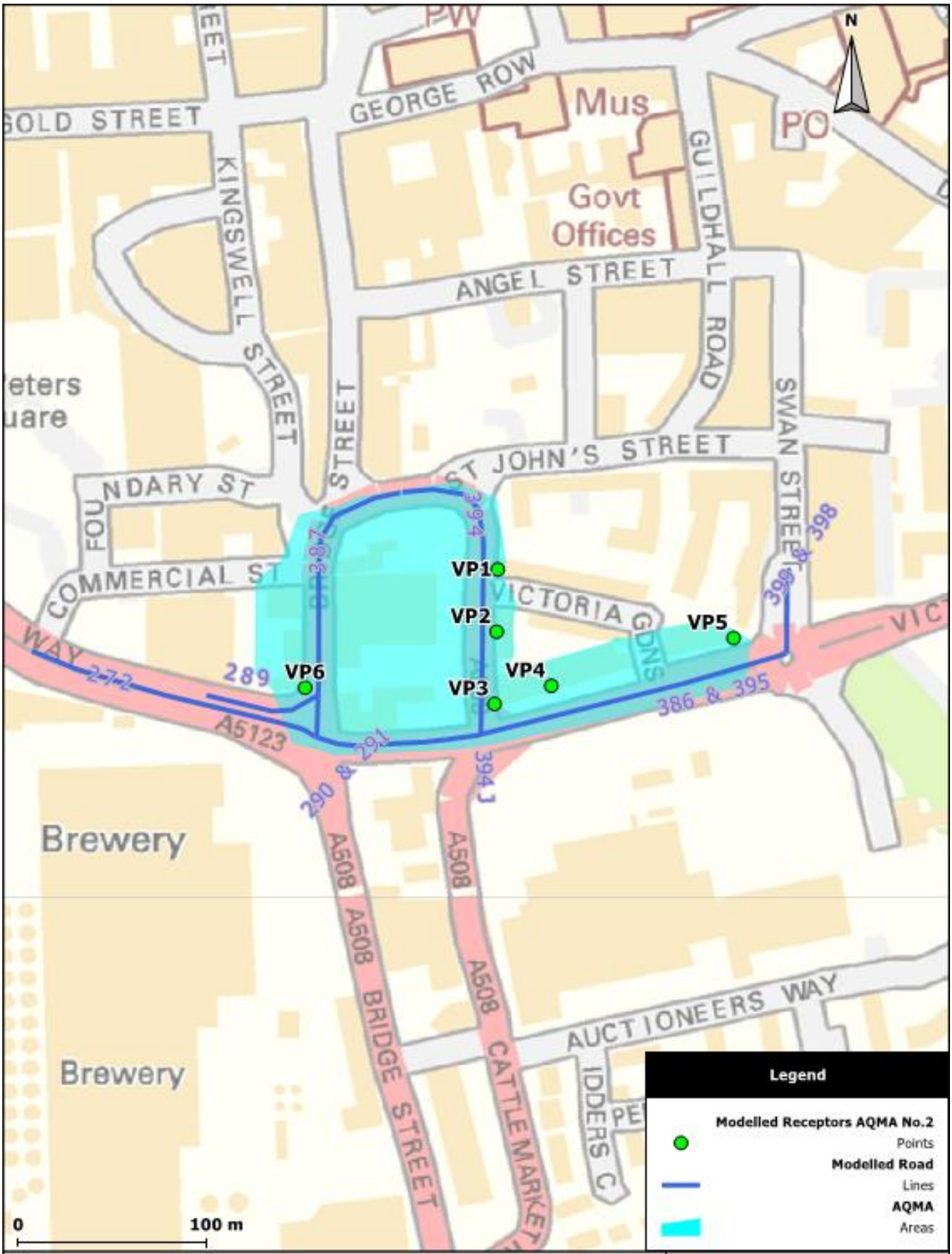

Figure 9.9: Local Operational Impacts - Northampton AQMA No.2, Victoria Promenade

Drawn by: HP
Date: 02/01/2019

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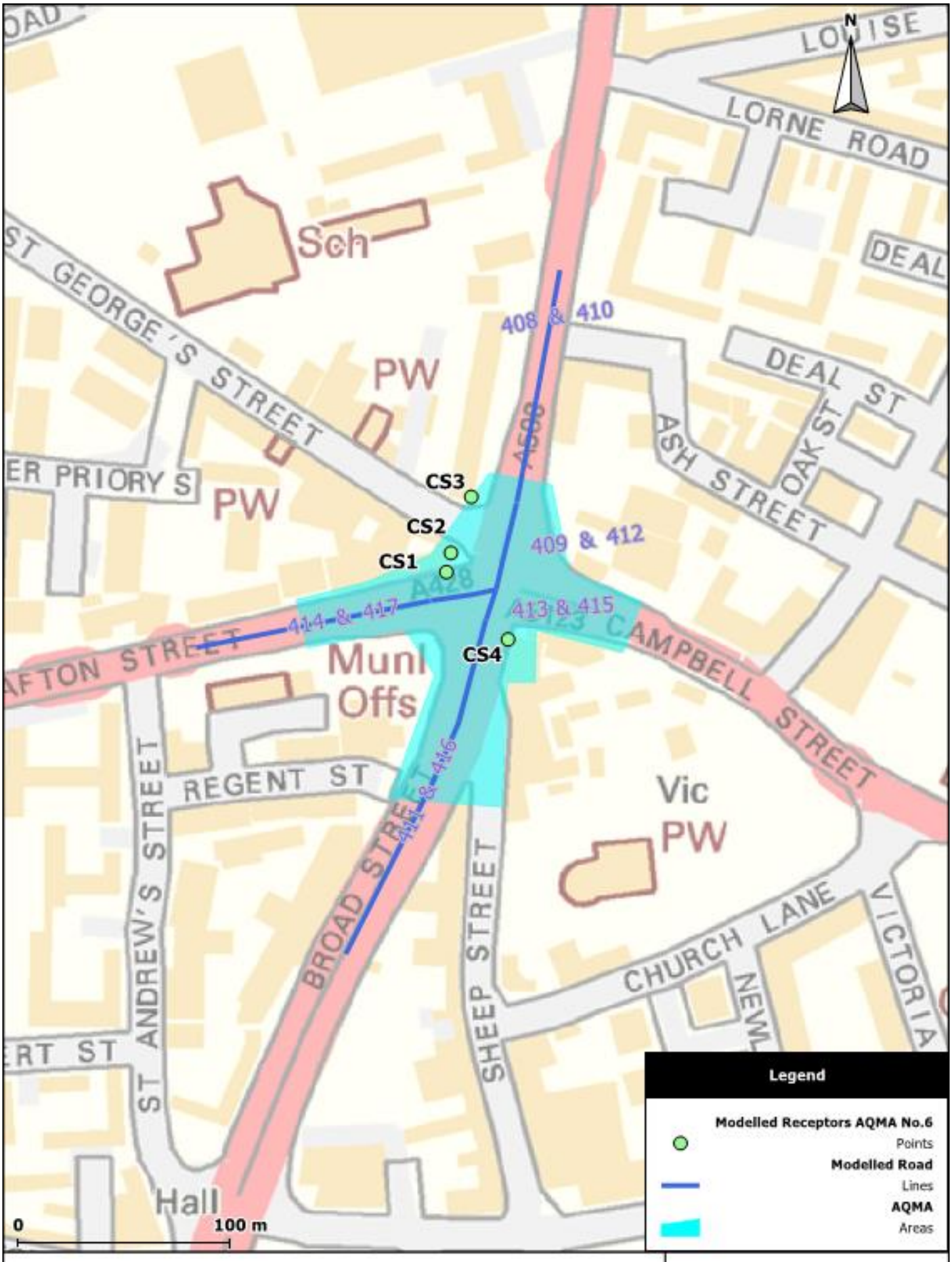

Figure 9.10: Local Operational Impacts - Northampton AQMA No.6, Campbell Square

Drawn by: HP
Date: 02/01/2019

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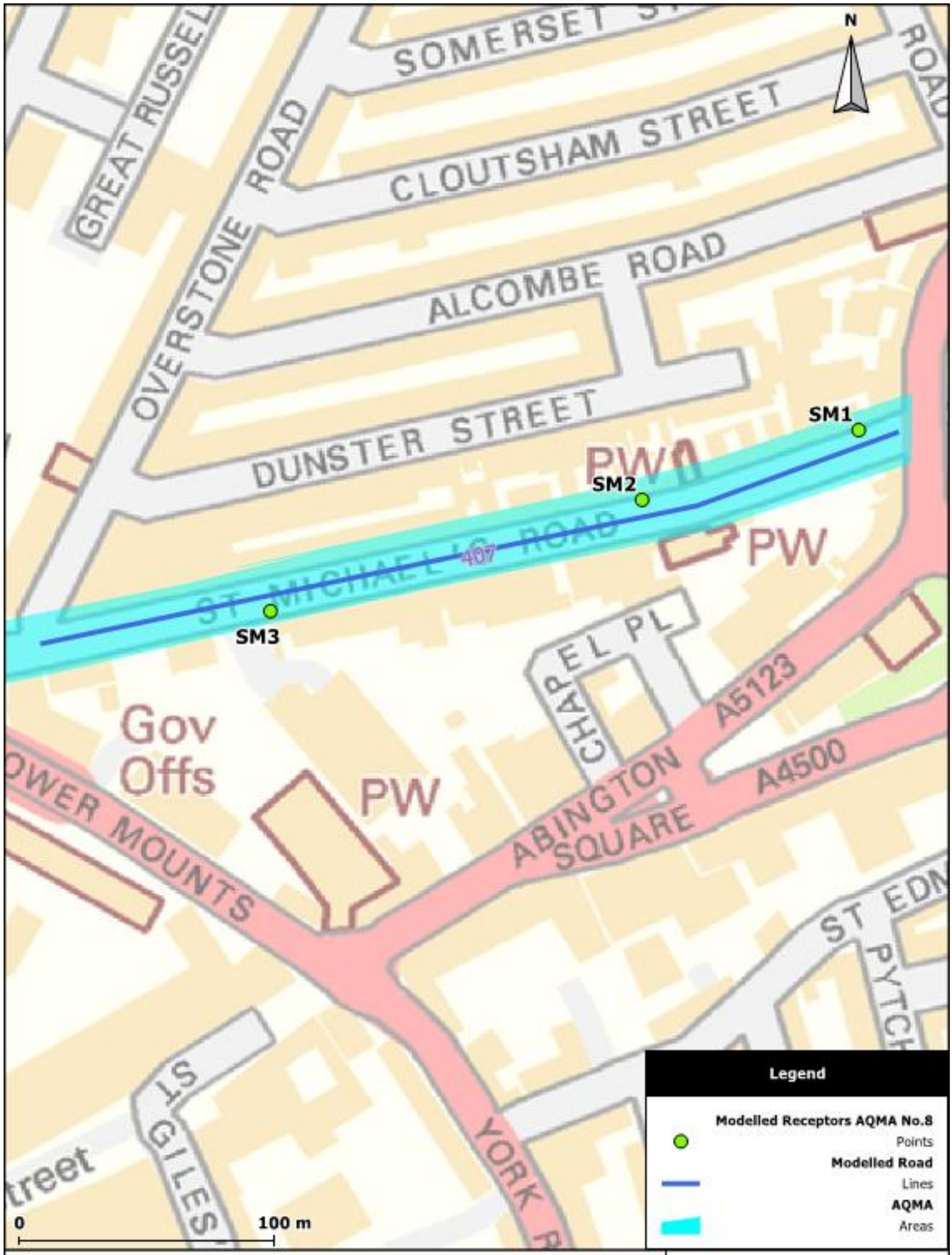

Figure 9.11: Local Operational Impacts - Northampton AQMA No.8, St Michaels Road

Drawn by: HP
Date: 02/01/2019

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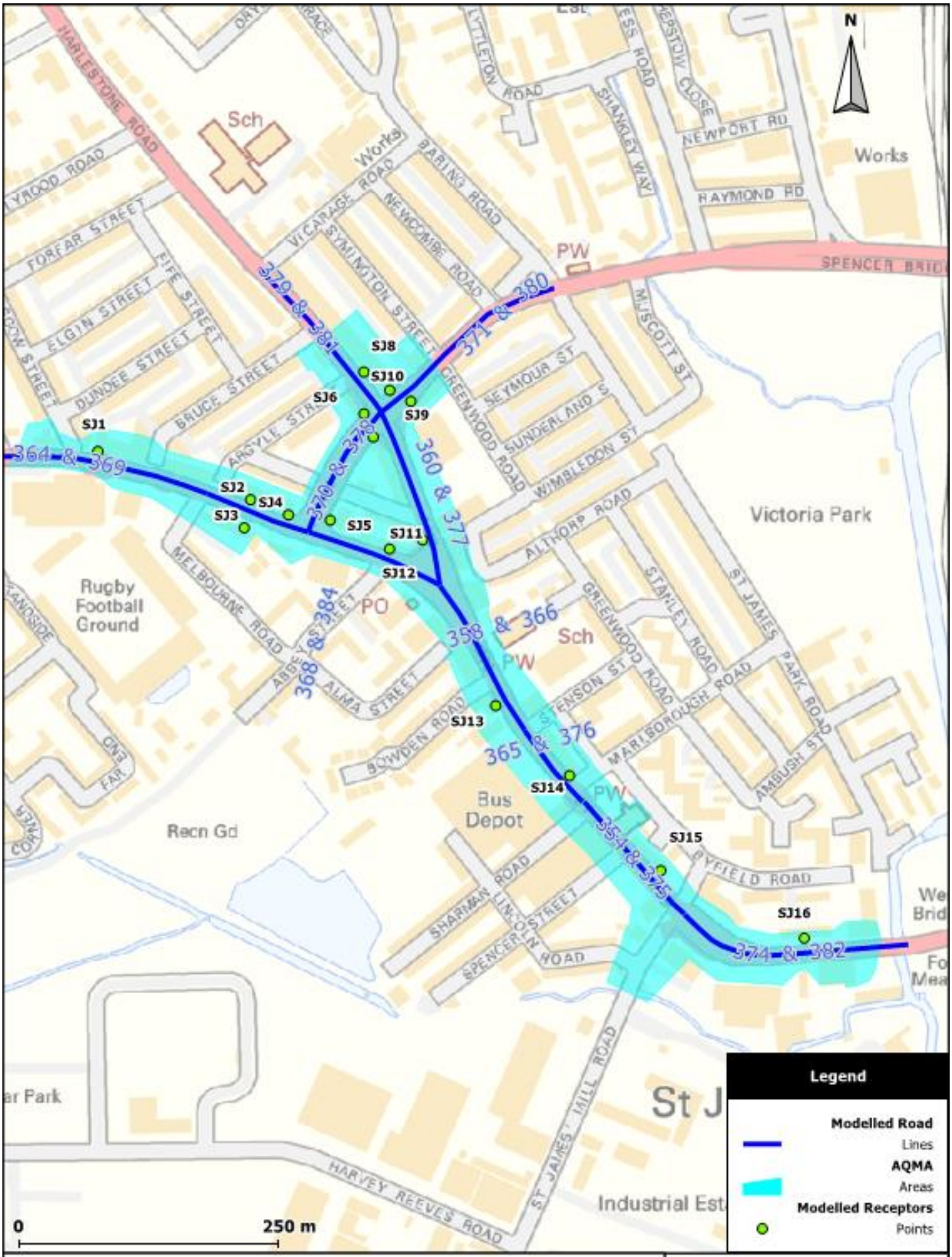

Figure 9.12: Local Operational Impacts - Northampton AQMA No.3, St James

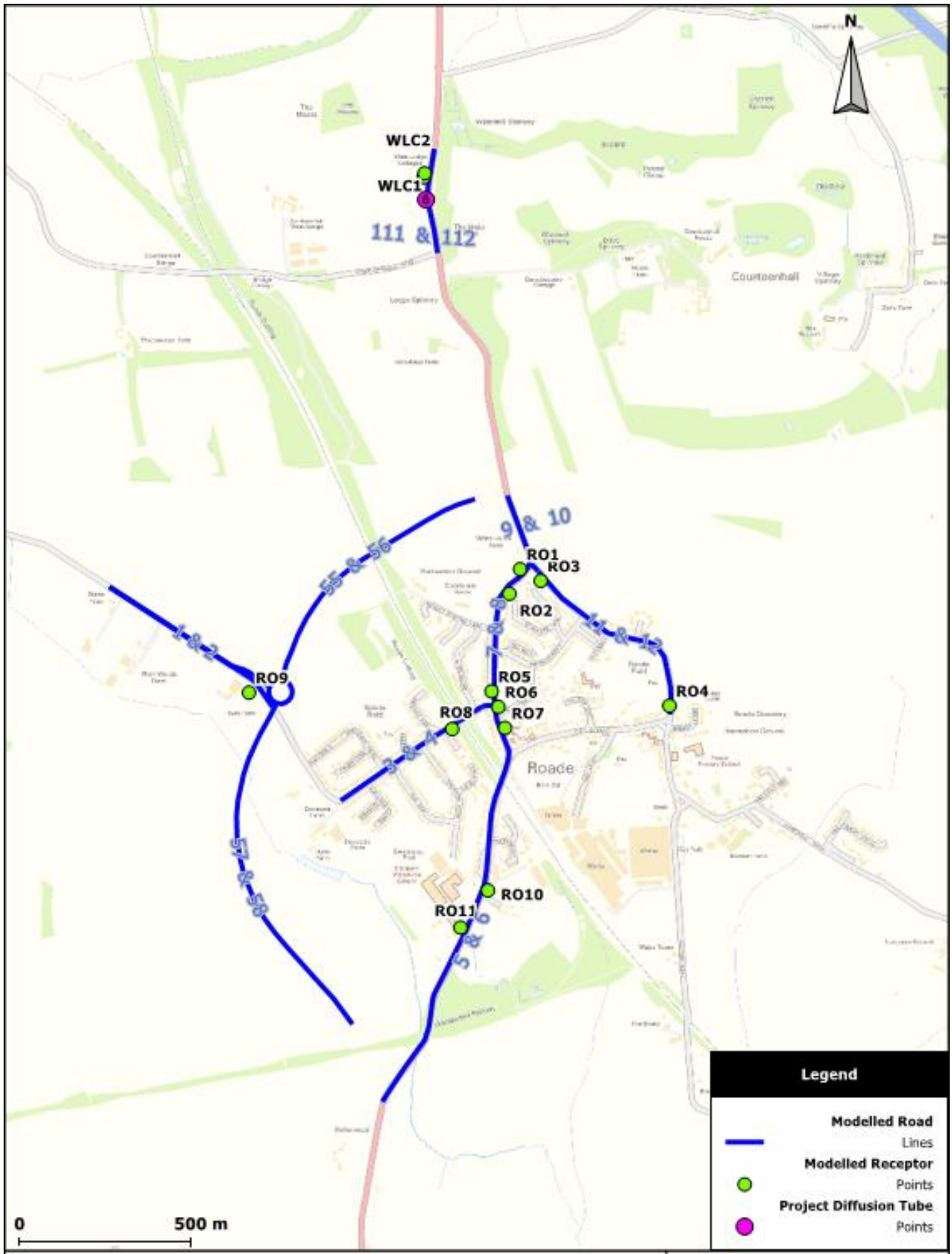

Figure 9.13: Local Operational Impacts - Roade and West Lodge Cottages

Drawn by: PN
Date: 02/01/2019

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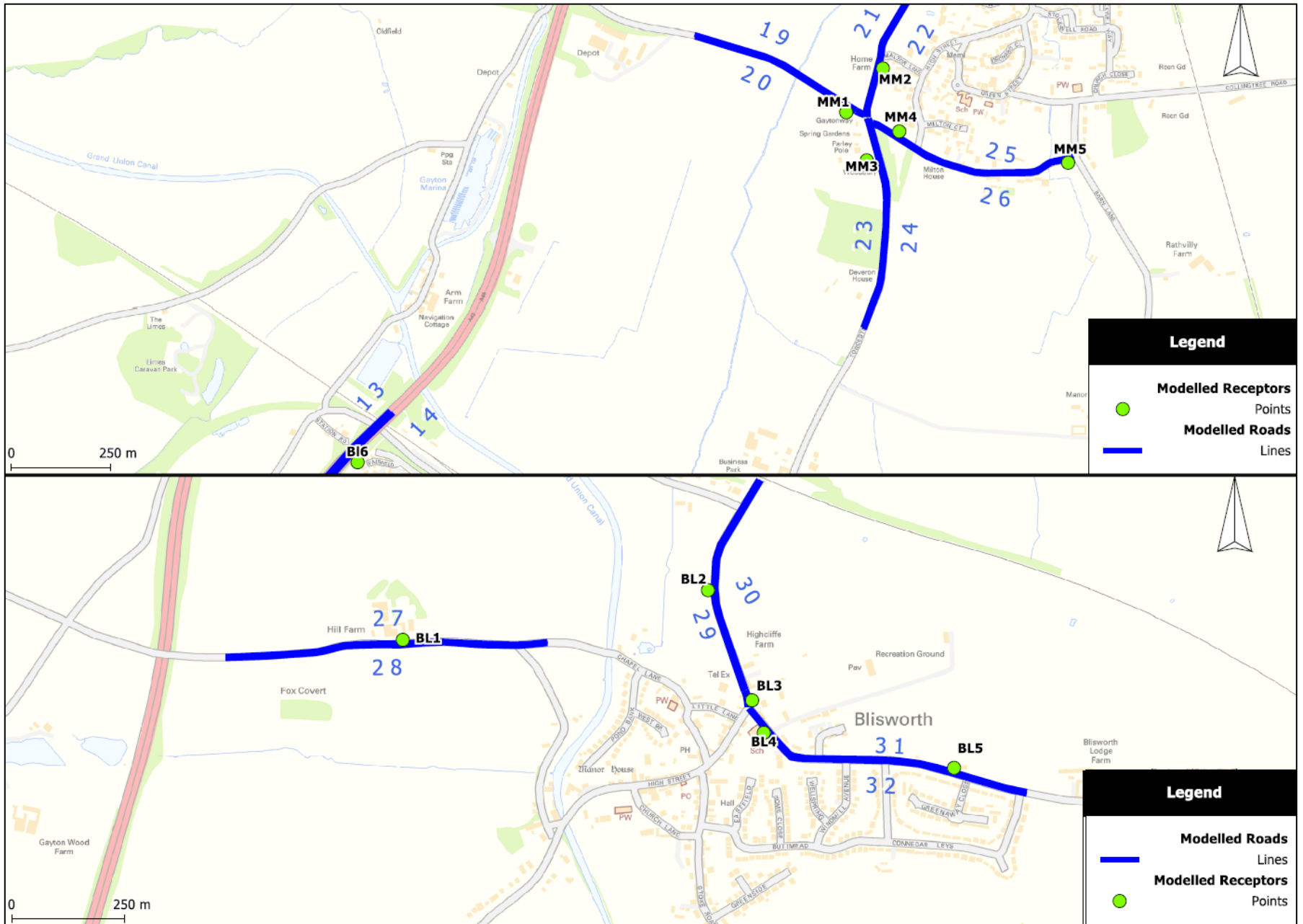

Figure 9.14: Local Operational Impacts - Blisworth & Milton Malsor

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Date: 21/02/2019

Figure 9.15: Local Operational Impacts - Towcester AQMA

Drawn By: HP
Date: 02/01/2019

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Figure 9.16: Local Operational Impacts - Hartwell

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Date: 02/01/2019

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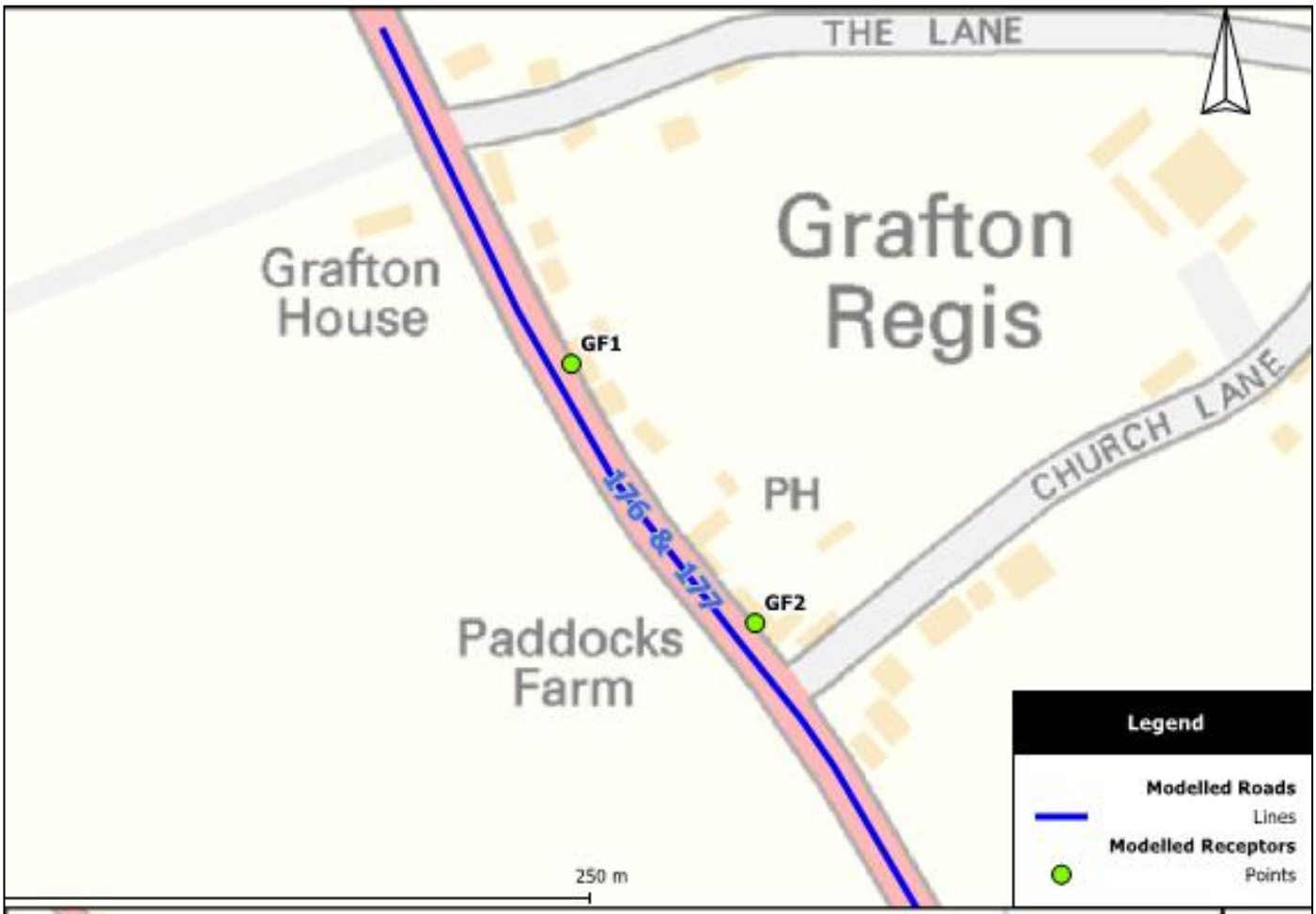

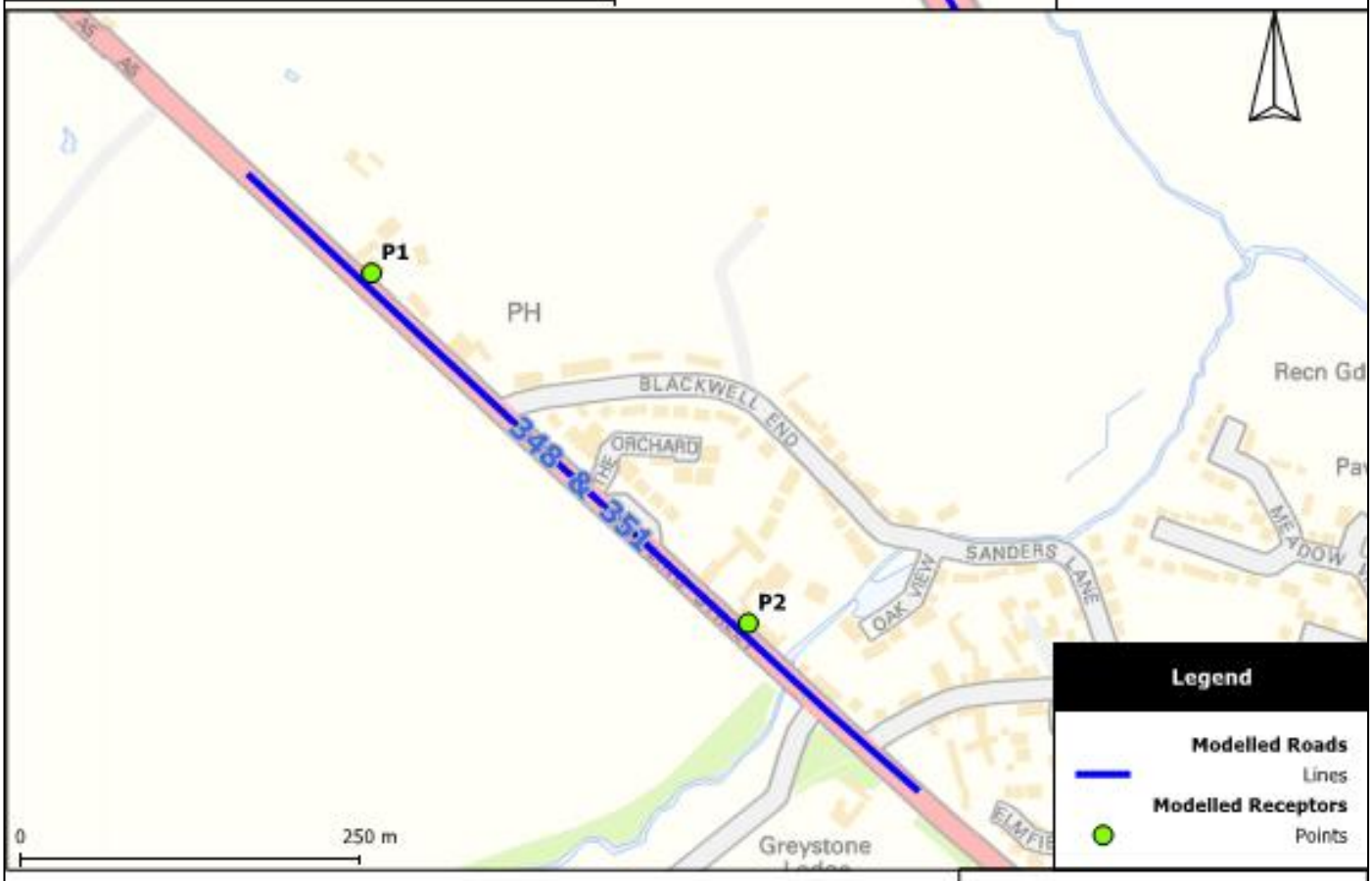

Figure 9.17: Local Operational Impacts - Grafton Regis & Pottersbury

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Drawn by: PN
Date: 02/01/2019

ROXHILL

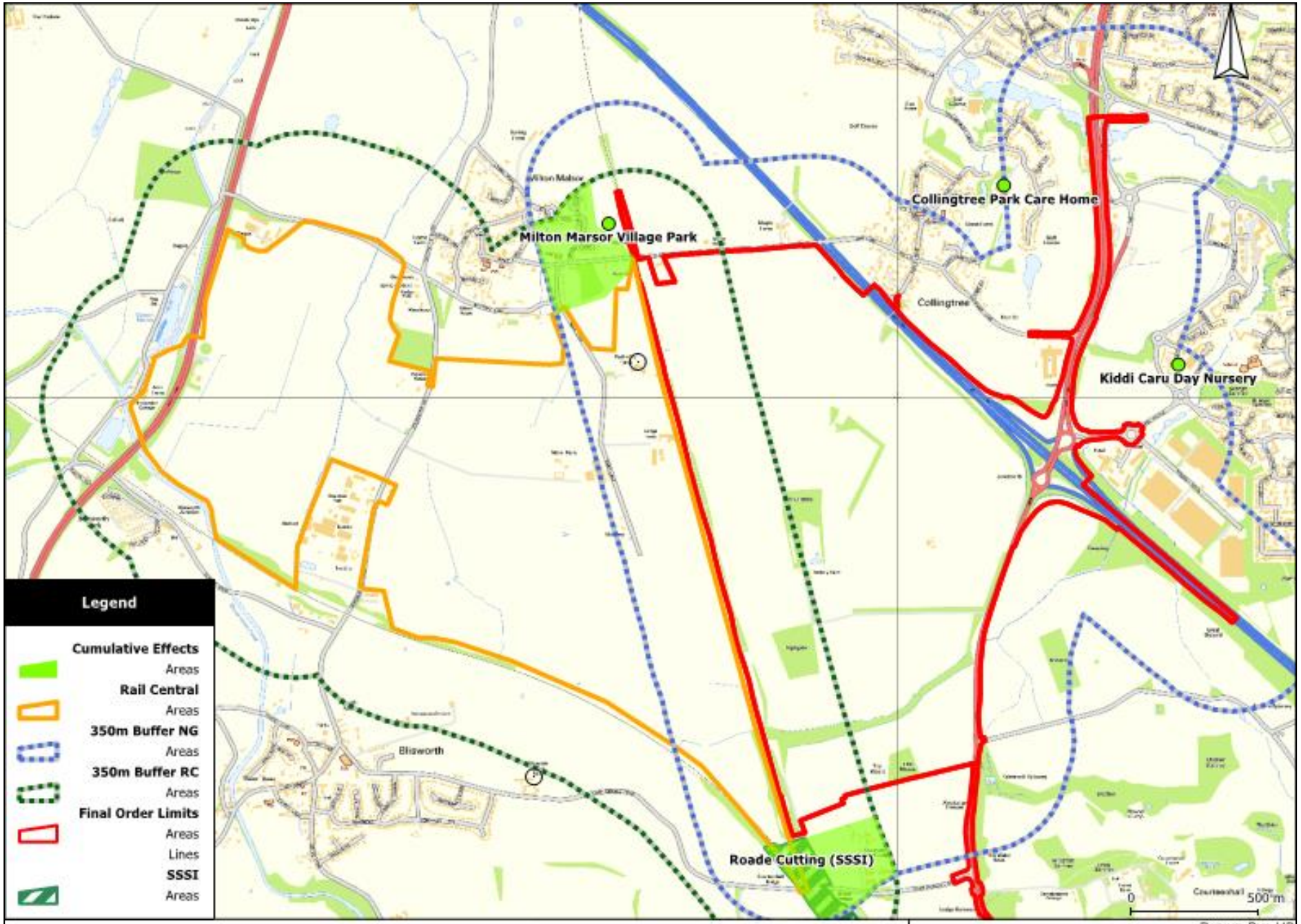

Figure 9.18 Northampton Gateway & Rail Central Construction Phase Receptors

Drawn By: HP
Date: 01/05/2018

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Appendix 4

ExQ2.9.2 – Agreed SoCG with Network Rail re Connection Speeds

STATEMENT OF COMMON GROUND IN RESPECT OF NORTHAMPTON GATEWAY RAIL FREIGHT INTERCHANGE

Parties

1. This statement is agreed between:

   - Roxhill (Junction 15) Limited ("Roxhill"); and
   - Network Rail.

Scope

2. A Statement of Common Ground was completed between Roxhill and Network Rail and submitted on 6 November 2018, Deadline 1 (Document 7.13).

3. That Statement of Common Ground (SoCG) indicated that there was an outstanding matter concerning connection speeds, as referred to in paragraphs 24.(a) and 30.

4. This SoCG updates the Examining Authority as to the agreement reached on this issue.

Connection Speed Issue

5. The SoCG indicated, at paragraph 24, that Network Rail agreed that *"there is sufficient capacity for the SRFI to operate up to 4 paths per day at the proposed date of commencement of operation of NG".* That statement was subject to two caveats, as set out in paragraph 24 (a) and (b).

6. As previously explained, caveat (b) will apply to any SRFI until its occupiers are known and is not capable of being addressed at this stage (see para 32. of previous SoCG). This SoCG updates the Examining Authority with regard to caveat (a), which indicates that the capacity conclusion was subject to the caveat:

   "(a) that trains can enter and exit the SRFI at a speed of not less than 40 mph (Network is considering the results of work produced by the Applicant regarding connection speeds)."

6. As indicated above, and in paragraph 30 of the previous SoCG, Network Rail have been considering material submitted by the Applicant seeking to provide them with confirmation that 40 mph connection speeds can be achieved.

7. It is now common ground that the application as submitted:

   - allows for 40 mph entry/exit speeds on all the reception sidings entering from the south; and
   - allows for 40 mph entry/exit speeds on one reception siding from the north.

8. The caveat identified in the SoCG of trains being able to enter and exit the SRFI at speeds of not less than 40 mph is therefore satisfied in both directions.

9. The Applicant is content that the above arrangements are entirely appropriate to service the SRFI, especially having regard to the levels of movements and the preponderance of movements utilising the southern entry/exit routes rather than the north. However, Network Rail have requested more resilience with a preference that all reception sidings have the ability to accommodate trains at speeds of not less than 40 mph. Accordingly, the applicant has reviewed the arrangements and submitted a scheme to Network Rail which enables all reception sidings to accommodate 40 mph entry/exit speeds.

10. Network Rail have now had the opportunity to consider the work submitted and have concluded that it would enable 40 mph entry speeds to be obtained on all reception sidings.

11. This has been achieved by a slight realignment of the rail tracks at the northern entry/exit. A minor amendment to the Works Plans and Parameters Plan is required to adjust the boundaries of Works No 1 as a consequence. These changes will be explained by the Applicant in a separate document and the appropriately revised plans submitted.

Signed on behalf of Roxhill (Junction 15) Ltd

Signed on behalf of Network Rail Infrastructure Limited

Appendix 5

ExQ2.9.13 – SEGRO EMG Maritime Press Release

PRESS RELEASE

SEGRO signs Maritime Transport to operate flagship Rail Freight Interchange in East Midlands

- **Maritime select SEGRO Logistics Park East Midlands Gateway as Rail HQ**
- **22.5-acre rail freight terminal to run up to 16 freight trains per day**
- **First train to run in Autumn 2019**

29th January 2019 – SEGRO has signed a 25 year lease with Maritime Transport, the market leading multi-modal logistics company, who will operate the Strategic Rail Freight Interchange (SRFI) at SEGRO Logistics Park East Midlands Gateway (SLP-EMG) and will base their Rail Headquarters at the site.

The 22.5 acre rail terminal will be capable of handling up to sixteen 775m-long freight trains daily and will provide storage capacity for over 5,000 TEU (the measurement of capacity of container terminals) – which is equal to approximately 55,000 pallets of cargo*.

A purpose built 20,000 sq ft office will become the Rail Headquarters under the "Maritime Intermodal" division and will house operations staff, state-of-the-art training facilities and parking for a fleet of up to 100 trucks. Completion of the rail freight terminal is expected in late 2019 and the office element in Summer 2020.

This is the first rail freight interchange in the East Midlands and will connect to the Castle Donnington freight line, providing direct access to the UK's network of Rail Freight Interchanges and all major UK Ports.

Andrew Pilsworth, SEGRO Business Unit Director National Logistics, said:

> "We are thrilled to have signed Maritime Transport as the rail freight operator at SEGRO Logistics Park East Midlands Gateway and to be the home for their Rail HQ operations.
>
> "Strategic Rail Freight Interchanges are recognised by the Government as being nationally important, both economically and environmentally. The demand we are witnessing for the efficient movement of goods – driven by customer demand and technology – shows no sign of abating and SLP-EMG is a key piece of infrastructure in meeting this need."

Simon Smart, CEO, Maritime Transport, said:

> "This is a very exciting deal for us and we're looking forward to launching SLP-EMG site as our flagship rail depot. Our intention is to use our logistics expertise within the intermodal sector to attract a significant number of new rail services to the terminal by offering a cost effective, highly reliable and environmentally efficient intermodal product."

As well as being regarded by the Government as nationally important, Strategic Rail Freight Interchanges bring tangible benefits to local communities - reducing traffic congestion on surrounding roads and improving levels of air quality.

Rail freight carries more than £30bn of goods around Britain each year and is more carbon efficient than road freight, with each tonne of freight transported by rail cutting carbon emissions by 76% compared with road haulage.*

SLP-EMG has planning consent for up to 6,000,000 sq ft of logistics accommodation – a third of which is already under contract.

The site is strategically located in the near centre of England with Nottingham 13 miles to the north-east, Leicester 20 miles to the south and Derby 14 miles to the north west.

As well as providing critical infrastructure for the logistics supply chain, the development will create 7,250 jobs, 900 construction jobs and 3,000 indirect jobs.

***Source: Network Rail, Rail Freight Handbook**
*** Source: https://dedola.com/2011/10/what-is-a-teu/**

For more information please contact:
Alexandra Park, Communications and Social Media Executive, SEGRO
0207 451 9113 / alexandra.park@segro.com

About SEGRO plc
SEGRO is a UK Real Estate Investment Trust (REIT), and a leading owner, manager and developer of modern warehouses and light industrial property. It owns or manages 6.9 million square metres of space (74 million square feet) valued at over £10 billion serving customers from a wide range of industry sectors. Its properties are located in and around major cities and at key transportation hubs in the UK and in nine other European countries.

See www.SEGRO.com for further information.

About Maritime Transport Ltd
Maritime Transport is one of the UK's leading logistics companies with a fleet of over 1,300 Euro 5 and Euro 6 trucks. With national coverage from over 30 sites, Maritime Transport offers logistics solutions in the container, distribution, rail and freight forwarding sectors in addition to providing container storage, repairs and conversions.

See maritimetransport.com for further information.

Appendix 6

ExQ2.9.13 – Maritime/DB Cargo Press Release

Maritime Transport and DB Cargo UK announce agreement to increase UK railfreight capacity

For immediate release: 11am, Friday, 25 January

Two of the UK's largest freight operators have announced plans to combine their expertise to increase railfreight capacity and competition in the intermodal market.

After reaching agreement in principle with DB Cargo UK, Maritime Transport Ltd has announced the launch of a new division – "Maritime Intermodal" which will initially contract four dedicated services out of Felixstowe and Southampton.

Maritime is currently Road Haulier of the Year and DB Cargo UK is Rail Freight Operator of the Year. The long-term agreement will enable each organisation to operate to its strengths, driving up service and efficiency which will result in increased intermodal capacity and growth in railfreight.

Under the terms of the proposed agreement:

- DB Cargo UK will be contracted to run Maritime Intermodal's rail operations out of Felixstowe and Southampton.
- Maritime Intermodal will take on responsibility for DB Cargo UK's terminals in Trafford Park, Manchester and Wakefield in West Yorkshire, thus strengthening the road haulier's national network of strategic hubs.
- Maritime Intermodal is committed to significant investment in both equipment and groundworks at the two sites improving terminal turnaround times whilst also increasing container storage capacities. The terminals will remain open access to both intermodal and non-intermodal services. Maritime Intermodal will retain existing services and seek additional services from all UK ports with all freight operating companies with the intention of increasing its intermodal offering.
- Maritime Intermodal will take responsibility for DB Cargo UK's existing intermodal customers on its Felixstowe and Southampton services.
- DB Cargo UK will retain and grow its remaining intermodal business including key flows to and from Scotland.

Hans-Georg Werner, CEO of DB Cargo UK, said:

"This is an exciting new agreement that brings together two of the largest and most successful freight companies in the UK to offer an industry-leading service to customers.

"It will enable DB Cargo UK to focus on what it does best – the efficient and reliable running of rail freight services, while giving Maritime the platform to offer its customers further capacity to move its container traffic.

He added: “Intermodal is the fastest growing freight market, yet our terminals were under-utilised. Maritime is a very successful logistics business and has the volumes and desire to turn these assets into sustainable and profitable distribution centres. It’s a real win-win and we look forward to working with Maritime going forward.”

John Williams, Executive Chairman of Maritime Group, said: “We are delighted to announce the launch of Maritime Intermodal, a new division of our business created with the intention of offering increased resource to our customers in an increasingly difficult market place.

He added: “In addition, over the four services alone, more than 32 million miles will be taken off the UK road network each year, reducing both congestion and carbon dioxide emissions. This further enhances our creativity in developing intermodal solutions for our customers.”

ENDS

For further information contact:

Richard Sears at DB Cargo UK on 07716 691193

Or

Lucy Gregory at Maritime Transport on 01394 617356.

Notes to Editors:

Photographs of both Hans-Georg Werner of DB Cargo and John Williams of Maritime Group are available, as well as stock images.

Appendix 7

ExQ2.9.13 – Rail Freight Group Letter to Railway Magazine

30 January 2019

Chris Milner
Editor
The Railway Magazine

By email cmilner@mortons.co.uk

Rail Freight Group
7 Bury Place
London WC1A 2LA

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F +44 (0)203 116 0008
W www.rfg.org.uk

Dear Editor

Right to Reply - Editorial in The Railway magazine – January 2019

In your January editorial "Genuine rail freight terminal or warehouses with seldom- used sidings" you suggest that recent applications for new rail warehousing are seeking to abuse planning law in order to get permission for their developments.

Disappointingly, the editorial is written from an anti-development perspective, with there being no attempt to provide any balance by explaining the context and need for these rail freight schemes which are currently being pursued through the Planning Act 2008.

The schemes referred to have not been proposed in a vacuum. They are a response to the Government policy set out in various documents which seeks to encourage the transfer of freight from road to rail. Specifically, in the National Policy Statement for National Networks (December 2014), the Government identified that there is a "compelling need for an expanded network of strategic rail freight interchanges (SRFIs)". The expansion of rail freight (and consequent benefits) cannot be achieved without more terminals. The Government explains in the National Policy Statement that it is for the market to bring forward the facilities having regard to the need to transfer freight from road to rail to assist with the objective of a low carbon economy and helping to address climate change.

The importance of these objectives is the reason why SRFI are considered to be nationally significant projects and consent is required to be obtained from the Secretary of State for Transport (not the Secretary of State for Housing Communities and Local Government as incorrectly stated in the editorial). All schemes undergo extensive scrutiny from the Planning Inspectorate, under a defined and clear process which gives opportunity for objectors to raise their concerns and for them to be heard.

Network Rail, in its 2018 Strategic Plan, set out a longer term vision to facilitate significant rail freight growth and, in doing so, states that it plans to facilitate new strategic rail freight terminals at the locations referred to in your editorial.

Given the above context it is inappropriate for the Railway Magazine to suggest that the promotion of such schemes is simply a deliberate attempt to circumvent local planning authorities.

The reality is that, unless strategic rail freight interchanges such as these are progressed, then both existing and future warehousing (which will still be developed) will continue to be simply road served with there being no opportunity to transfer the freight from road to rail. The editorial does not address how that modal shift is to be achieved in the absence of such schemes.

Please could you make sure this letter is published in your next edition.

Yours sincerely,

Maggie Simpson
Director General