

January 2024

# London Luton Airport Expansion

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**8.172 Accounting for Covid-19 in Transport Modelling -  
Environmental Appraisal**

Infrastructure Planning (Examination Procedure) Rules 2010 Application

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**The Infrastructure Planning (Examination Procedure) Rules 2010**

**London Luton Airport Expansion Development Consent  
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**8.172 Accounting for Covid-19 in Transport Modelling -  
Environmental Appraisal**

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# Contents

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	Page
<b>1 Introduction</b>	<b>1</b>
1.2 Noise	1
1.3 Air Quality	2
1.4 Traffic and Transportation	15
1.5 Greenhouse Gases	27
1.6 Health	28
1.7 Biodiversity	28
1.8 Conclusion	29
<b>Glossary and Abbreviations</b>	<b>30</b>
<b>References</b>	<b>31</b>

## Appendix A – Figures

### Tables

Table 1.1: Modelled human receptors
Table 1.2: Modelled ecological receptors
Table 1.3: Phase 1 detailed assessment NO <sub>2</sub> results (µg/m <sup>3</sup> )
Table 1.4: Phase 1 detailed assessment PM <sub>10</sub> results (µg/m <sup>3</sup> )
Table 1.5: Phase 1 detailed assessment PM <sub>2.5</sub> results (µg/m <sup>3</sup> )
Table 1.6: Phase 1 detailed assessment NO <sub>x</sub> results (µg/m <sup>3</sup> )
Table 1.7: Phase 1 detailed assessment nitrogen deposition results in kilograms of Nitrogen per hectare per year (kg N/ha/yr)
Table 1.8: Phase 2b detailed assessment NO <sub>2</sub> results (µg/m <sup>3</sup> )
Table 1.9: Phase 2b detailed assessment PM <sub>10</sub> results (µg/m <sup>3</sup> )
Table 1.10: Phase 2b detailed assessment PM <sub>2.5</sub> results (µg/m <sup>3</sup> )
Table 1.11: Phase 2b detailed assessment NO <sub>x</sub> results (µg/m <sup>3</sup> )
Table 1.12: Phase 2b detailed assessment nitrogen deposition results (kg N/ha/yr)
Table 1.13: Growth in AADT flows due to the Proposed Development
Table 1.14: Magnitude of impact for driver delay (2039)
Table 1.15: Review of changes in PICs (Assessment Phase 2a, 2039)
Table 1.16: Road links assessed for change in driver stress (2043)
Table 1.17: Magnitude of impact for driver delay (2043)
Table 1.18: Road links requiring detailed assessment, Assessment 2b(2043)
Table 1.19: Review of changes in PICs (2043)
Table 1.20: Revisions to Traffic and Transportation assessment summary

# 1 INTRODUCTION

- 1.1.1 As a part of the Examination of the application for development consent for the expansion of London Luton Airport to 32 mppa (the Proposed Development), the Examining Authority (ExA) made a procedural decision via a Rule 9 Letter to the Applicant on [16 May 2023 **[PD-005]**] to take account of the potential impacts of Covid-19 on the traffic modelling undertaken to inform the Transport Assessment and Environmental Impact Assessment undertaken in support of the application.
- 1.1.2 The outcome of the transport review in response to this request was submitted on 15 December 2023 in the **Applicant's Response to Issue Specific Hearing 7 Action 2 - Accounting for Covid-19 in Transport Modelling Final Report [AS-159]**. In Section 6 of that document it was explained that the environmental review of the potential implications of Covid-19 updated traffic related assessments was underway and would be reported at Deadline 7. This document reports the findings of that environmental review.
- 1.1.3 The updated traffic data has been reviewed for each of the assessment phases considered in the Environmental Statement (ES), for 2027, 2039 and 2043, both without and with the Proposed Development, using procedures that have already been established and used for the previous forecasting, as described in the **Transport Assessment [TR020001/APP/7.02]** and Environmental Statement **[TR020001/APP/5.01 to 5.04]**. The primary use of this data is for Air Quality and Noise assessment however the data has been reviewed by each relevant specialist assessment team and implications considered. Qualitative, and quantitative where applicable, commentary on the implications for the relevant environmental assessments is provided below.

## 1.2 Noise

### Assessment Phase 1

- 1.2.1 The updated traffic data results in negligible (less than 1 dB) changes in surface access noise, when compared to the absolute traffic noise levels that informed the ES and summarised in Table 16.70 of **Chapter 16 of the ES [REP1-003]**.
- 1.2.2 These changes do not lead to any materially different effects with the exception of 17 residential buildings adjacent to Eaton Green Road between Vauxhall Way and Frank Lester Way. The updated traffic data indicates a small increase in both directions on this section of Eaton Green Road with the Proposed Development (Do-Something, DS) when compared to the traffic data used to inform the ES. This is primarily because, unlike the future baseline assumed in the ES (Do-Minimum, DM), the updated traffic model assumes that the dualling of Vauxhall Way would not be complete in 2027 (on the advice of Luton Borough Council, the responsible highway authority) and this therefore results in some localised redistribution of traffic.
- 1.2.3 As noted above, this redistributed traffic on Eaton Green Road results in negligible increases in road traffic noise in the DS scenario when compared to the ES. However, this negligible increase is sufficient to change the magnitude

of impact when calculating the difference between the DM and DS from negligible (0.1 to 0.9 dB) to minor (1.0 to 2.9 dB) at residential properties on Eaton Green Road (see Table 16.17 of **Chapter 16 of the ES [REP1-003]**). As such, **significant** adverse effects are now predicted for the 17 residential buildings closest to Eaton Green Road, between Vauxhall Way and Frank Lester Way, where noise levels are above the Significant Observed Adverse Effect Level (SOAEL). This is expected to be temporary until such time as the dualling of Vauxhall Way is complete, which is expected to be complete within one or two years. As these properties are very close to the SOAEL (typically within 1 dB), and as the significant adverse effects would only be temporary, it is therefore not considered sustainable to provide noise insulation for these temporary effects. This is in line with government noise policy that significant adverse effects on health and quality of life from noise should be avoided in the context of sustainable development.

### **Assessment Phase 2a**

- 1.2.4 The updated traffic data results in predominantly negligible changes in surface access noise in 2039 when compared to the results reported in the ES and summarised in Table 16.71 of **Chapter 16 of the ES [REP1-003]**
- 1.2.5 A minor relative increase in surface access noise is predicted for Stony Lane in Tea Green, between Brick Kiln Lane and Lilley Bottom, but the impact of the Proposed Development remains minor, and no new significant effects are expected.
- 1.2.6 Elsewhere, the negligible changes in surface access noise do not lead to any materially different effects to those reported in the ES. In particular, no significant effects are predicted for properties on Eaton Green Road as the dualling of Vauxhall Way will be complete and much of the traffic on this road in 2027 is relocated to the Airport Access Road in 2039.

### **Assessment Phase 2b**

- 1.2.7 The updated traffic data results in negligible changes in surface access noise in 2043 when compared to the results reported in the ES and summarised in Table 16.72 of **Chapter 16 of the ES [REP1-003]** .
- 1.2.8 As in 2039 at assessment Phase 2a, the negligible changes in surface access noise in 2043 do not lead to any materially different effects to those reported in the ES.

## **1.3 Air Quality**

- 1.3.1 A screening approach was taken for the review of the implications of the updated road traffic on the results and conclusions of the air quality assessment provided in **Chapter 7 of the ES [AS-076]**. Each step refers to a review of the traffic data for each individual road link used in the air quality assessment. An approach was taken to focus any detailed assessment in areas where there was the greatest risk of material changes and potential new impacts. This was considered appropriate as it was likely that accounting for Covid-19 would

reduce the Annual Average Daily Traffic (AADT) of non-airport related traffic, which would result in exposure to lower total concentrations of pollutants.

- 1.3.2 Updated traffic data was reviewed for the Core Planning Case for the assessment scenarios (Phase 1, Phase 2a and Phase 2b). Criteria from the IAQM/EPUK guidance (Ref 1) was used to determine whether there were material changes to the updated traffic, in comparison to the traffic data used in the ES (ES traffic):
- a. a change of Light Duty Vehicle (LDV) flows of more than 100 AADT movements within or adjacent to an Air Quality Management Area (AQMA), or more than 500 AADT elsewhere; and
  - b. a change of Heavy-Duty Vehicle (HDV) flows of more than 25 AADT movements within or adjacent to an AQMA, or more than 100 AADT elsewhere.
- 1.3.3 The traffic data for each road link in the modelled road network was compared and if any one of the following statements were true for the road link, it was screened out of further detailed assessment:
- a. If the total volume decreased in updated traffic compared to ES traffic.
  - b. If the change between Do Minimum (DM) and Do Something (DS) traffic (DM-DS change) in the updated traffic was less than the change in the ES traffic.
  - c. If the DM-DS change in the updated traffic was more than the DM-DS change in the ES traffic, but the updated DM-DS change was below the relevant IAQM/EPUK criteria.
  - d. If the DM-DS change in the updated traffic was more than the DM-DS change in the ES traffic, and the updated DM-DS change was above the relevant IAQM/EPUK criteria, but the difference between the updated DM-DS change and the ES DM-DS change (i.e. the difference between the changes in each dataset) was below the relevant IAQM/EPUK criteria.
- 1.3.4 The remaining road links still screened in for detailed assessment included those where:
- a. the updated total volume of traffic increased compared to the ES traffic;
  - b. the updated DM-DS change exceeded IAQM/EPUK criteria; and
  - c. the updated DM-DS change of LDVs was either 100 AADT (within AQMA) or 500 AADT (outside AQMA) greater than the ES DM-DS change; or the change of HDVs was either 25 AADT (within AQMA) or 100 AADT (outside AQMA) greater than the ES DM-DS change.
- 1.3.5 This left the following road links still screened in for detailed assessment:
- a. Assessment Phase 1:
    - i. Crawley Green Road between the A6 junction and Vauxhall Way.
  - b. Assessment Phase 2b:
    - i. A1081 New Airport Way between London Road slip roads.

- ii. Wigmore Lane between Crawley Green Road and Twyford Drive.

1.3.6 There were no road links identified for detailed assessment in Assessment Phase 2a.

### Detailed Assessment

1.3.7 The same dispersion modelling approach was taken as that detailed in **Appendix 7.1 of the ES [AS-028]**, but the latest version of the Emissions Factor Toolkit (EFT) was used which was updated in December 2023 (Ref 2). The modelling focused on the receptors along the road links identified for detailed assessment (considered to be most sensitive to the changes). The human receptors included in the detailed assessment are provided in Table 1.1. There were no ecological receptors identified along the road links screened in, so a 200m buffer from these road links was used to capture ecological receptors to understand the potential changes at these locations. The ecological receptors included are provided in Table 1.2. All road links within 200m of the human and ecological receptors have been modelled. The locations of the human and ecological receptors in relation to the road link identified for detailed assessment is shown in the figure provided in **Appendix A** to this report.

Table 1.1: Modelled human receptors

ID	Address	X	Y	Type	AQMA (Y/N)
<b>Assessment Phase 1</b>					
H11	30 Crawley Green Road, Luton, LU2 0QX	510051	221307	Residential	N
H16	1 Hart Lane, Luton, LU2 0JF	510259	221614	Residential	N
H58	Cuckoos Nest, 60 Crawley Green Road, Luton, LU2 0QW	510190	221448	Residential	N
H81	284 Crawley Green Road, Luton, LU2 0SJ	510771	222155	Residential	N
H115	86 Crawley Green Road, Luton, LU2 0QU	510271	221584	Residential	N
H161	94 Crawley Green Road, Luton, LU2 0QT	510301	221620	Residential	N
H172	61 Crawley Green Road, Luton, LU2 0AA	510158	221460	Residential	N
H175	255 Crawley Green Road, Luton, LU2 0QJ	510659	222084	Residential	N
H206	159 Crawley Green Road, Luton, LU2 0QL	510443	221834	Residential	N
H211	Woodland Court, Hart Hill Drive, Luton, LU2 0AX	510078	221356	Residential	N

ID	Address	X	Y	Type	AQMA (Y/N)
H267	279 Crawley Green Road, Luton, LU2 0QH	510820	222230	Residential	N
H324	1 Leygreen Close, Luton, LU2 0SQ	510475	221830	Residential	N
H345	30 Crawley Green Road, Luton, LU2 0QX	510051	221307	Residential	N
H427	306 Crawley Green Road, Luton, LU2 0SL	510859	222214	Residential	N
H440	97 Crawley Green Road, Luton, LU2 0JU	510223	221575	Residential	N
<b>Assessment Phase 2b</b>					
H42	19 Felton Close, Luton, LU2 9TD	511842	222478	Residential	N
H114	12 Felton Close, Luton, LU2 9TD	511870	222431	Residential	N
H182	7 Alderton Close, Luton, LU2 9SA	511845	222423	Residential	N
H217	6 Alderton Close, Luton, LU2 9SA	511882	222378	Residential	N
H298	19 Felton Close, Luton, LU2 9TD	511842	222478	Residential	N
H377	4 Felton Close, Luton, LU2 9TD	511906	222405	Residential	N
H378	6 Pinford Dell, Luton, LU2 9SD	511823	222442	Residential	N
H413	43 Bull Wood Cottages, London Road, Luton, LU1 4LA	509336	219036	Residential	N
H448	42 Bull Wood Cottages, London Road, Luton, LU1 4LA	509339	219030	Residential	N

Table 1.2: Modelled ecological receptors

ID	Site Name	X	Y	Designation
<b>Assessment Phase 1</b>				
E30	Church Cemetery, Luton	509982	221268	Local Wildlife Site (LWS)
E30.1	Church Cemetery, Luton	509988	221260	LWS
E30.2	Church Cemetery, Luton	509994	221252	LWS
E30.3	Church Cemetery, Luton	510000	221243	LWS
E30.4	Church Cemetery, Luton	510006	221235	LWS
E30.5	Church Cemetery, Luton	510011	221227	LWS
E30.6	Church Cemetery, Luton	510017	221219	LWS
E30.7	Church Cemetery, Luton	510023	221211	LWS
E30.8	Church Cemetery, Luton	510029	221203	LWS



ID	Site Name	X	Y	Designation
E30.9	Church Cemetery, Luton	510035	221195	LWS
E30.10	Church Cemetery, Luton	510040	221187	LWS
E30.11	Church Cemetery, Luton	510046	221178	LWS
E30.12	Church Cemetery, Luton	510052	221170	LWS
E30.13	Church Cemetery, Luton	510058	221162	LWS
E30.14	Church Cemetery, Luton	510064	221154	LWS
E30.15	Church Cemetery, Luton	510070	221146	LWS
E30.16	Church Cemetery, Luton	510075	221138	LWS
E30.17	Church Cemetery, Luton	510081	221130	LWS
E30.18	Church Cemetery, Luton	510087	221121	LWS
E30.19	Church Cemetery, Luton	510093	221113	LWS
E30.20	Church Cemetery, Luton	510099	221105	LWS
<b>Assessment Phase 2b</b>				
E37	Slaughters Wood and Green Lane	511898	222555	LWS
E37.1	Slaughters Wood and Green Lane	511896	222564	LWS
E37.2	Slaughters Wood and Green Lane	511895	222574	LWS
E37.3	Slaughters Wood and Green Lane	511894	222584	LWS
E37.4	Slaughters Wood and Green Lane	511893	222594	LWS
E37.5	Slaughters Wood and Green Lane	511892	222604	LWS
E37.6	Slaughters Wood and Green Lane	511890	222614	LWS
E37.7	Slaughters Wood and Green Lane	511889	222624	LWS
E37.8	Slaughters Wood and Green Lane	511888	222634	LWS
E37.9	Slaughters Wood and Green Lane	511887	222644	LWS
E37.10	Slaughters Wood and Green Lane	511886	222654	LWS
E37.11	Slaughters Wood and Green Lane	511884	222664	LWS
E37.12	Slaughters Wood and Green Lane	511883	222674	LWS
E37.13	Slaughters Wood and Green Lane	511882	222684	LWS
E37.14	Slaughters Wood and Green Lane	511881	222693	LWS
E37.15	Slaughters Wood and Green Lane	511880	222703	LWS
E37.16	Slaughters Wood and Green Lane	511878	222713	LWS
E37.17	Slaughters Wood and Green Lane	511877	222723	LWS
E37.18	Slaughters Wood and Green Lane	511876	222733	LWS
E37.19	Slaughters Wood and Green Lane	511875	222743	LWS
E37.20	Slaughters Wood and Green Lane	511874	222753	LWS
E49	Kidney and Bull Woods	509301	219128	LWS

ID	Site Name	X	Y	Designation
E49.1	Kidney and Bull Woods	509296	219136	LWS
E49.2	Kidney and Bull Woods	509291	219145	LWS
E49.3	Kidney and Bull Woods	509286	219153	LWS
E49.4	Kidney and Bull Woods	509281	219162	LWS
E49.5	Kidney and Bull Woods	509270	219179	LWS
E49.6	Kidney and Bull Woods	509265	219188	LWS
E49.7	Kidney and Bull Woods	509260	219196	LWS
E49.8	Kidney and Bull Woods	509255	219205	LWS
E49.9	Kidney and Bull Woods	509249	219213	LWS
E49.10	Kidney and Bull Woods	509244	219222	LWS
E49.11	Kidney and Bull Woods	509239	219230	LWS
E49.12	Kidney and Bull Woods	509234	219239	LWS
E49.13	Kidney and Bull Woods	509228	219247	LWS
E49.14	Kidney and Bull Woods	509223	219256	LWS
E49.15	Kidney and Bull Woods	509218	219264	LWS
E49.16	Kidney and Bull Woods	509213	219273	LWS
E49.17	Kidney and Bull Woods	509208	219281	LWS
E49.18	Kidney and Bull Woods	509202	219290	LWS
E49.19	Kidney and Bull Woods	509197	219299	LWS
E49.20	Kidney and Bull Woods	509301	219128	LWS
E50	Stockwood Park	509161	219259	LWS

## Assessment Phase 1

### *Human Receptors*

1.3.8 The human receptor results for assessment Phase 1 for NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> are provided in Table 1.3 to Table 1.5. The detailed assessment of the receptors at greatest risk of material changes predicted negligible impacts as a result of the updated traffic which are **not significant**.

Table 1.3: Phase 1 detailed assessment NO<sub>2</sub> results (µg/m<sup>3</sup>)

ID	DM	DS	Change	Impact
H11	16.9	17.5	0.5	Negligible
H16	16.8	17.5	0.7	Negligible
H58	15.8	16.2	0.5	Negligible
H81	15.9	16.6	0.7	Negligible
H115	16.3	16.9	0.6	Negligible

ID	DM	DS	Change	Impact
H161	17.1	17.9	0.8	Negligible
H172	16.8	17.5	0.6	Negligible
H175	15.7	16.4	0.7	Negligible
H206	15.7	16.4	0.7	Negligible
H211	17.5	18.2	0.7	Negligible
H267	17.2	18.0	0.8	Negligible
H324	15.9	16.6	0.7	Negligible
H345	16.9	17.5	0.5	Negligible
H427	16.9	17.5	0.6	Negligible
H440	16.2	16.9	0.6	Negligible

Table 1.4: Phase 1 detailed assessment PM<sub>10</sub> results (µg/m<sup>3</sup>)

ID	DM	DS	Change	Impact
H11	15.0	15.1	<0.1	Negligible
H16	14.9	15.0	<0.1	Negligible
H58	14.8	14.8	<0.1	Negligible
H81	15.0	15.1	<0.1	Negligible
H115	14.9	14.9	<0.1	Negligible
H161	14.9	15.0	<0.1	Negligible
H172	14.9	15.0	<0.1	Negligible
H175	15.0	15.1	<0.1	Negligible
H206	14.9	15.0	<0.1	Negligible
H211	15.1	15.2	<0.1	Negligible
H267	15.2	15.3	<0.1	Negligible
H324	15.0	15.0	<0.1	Negligible
H345	15.0	15.1	<0.1	Negligible
H427	15.1	15.2	<0.1	Negligible
H440	14.9	15.0	<0.1	Negligible

Table 1.5: Phase 1 detailed assessment PM<sub>2.5</sub> results (µg/m<sup>3</sup>)

ID	DM	DS	Change	Impact
H11	10.2	10.3	<0.1	Negligible
H16	10.2	10.2	<0.1	Negligible
H58	10.1	10.1	<0.1	Negligible

ID	DM	DS	Change	Impact
H81	10.3	10.3	<0.1	Negligible
H115	10.1	10.2	<0.1	Negligible
H161	10.2	10.2	<0.1	Negligible
H172	10.2	10.2	<0.1	Negligible
H175	10.3	10.3	<0.1	Negligible
H206	10.2	10.2	<0.1	Negligible
H211	10.3	10.3	<0.1	Negligible
H267	10.4	10.4	<0.1	Negligible
H324	10.2	10.2	<0.1	Negligible
H345	10.2	10.3	<0.1	Negligible
H427	10.3	10.3	<0.1	Negligible
H440	10.1	10.2	<0.1	Negligible

### ***Ecological Receptors***

1.3.9 The ecological receptor results for assessment Phase 1 for NO<sub>x</sub> and nitrogen deposition are provided in Table 1.6 and Table 1.7. The results have been passed to the project ecologist to determine significance which is described in Section 1.7 of this report.

Table 1.6: Phase 1 detailed assessment NO<sub>x</sub> results (µg/m<sup>3</sup>)

ID	DM	DS	Change	Above/below standard
E30	22.9	23.9	1.0	Below
E30.1	20.2	20.7	0.5	Below
E30.2	19.1	19.5	0.4	Below
E30.3	18.5	18.8	0.3	Below
E30.4	19.0	19.2	0.3	Below
E30.5	18.7	18.9	0.2	Below
E30.6	18.5	18.7	0.2	Below
E30.7	18.4	18.6	0.2	Below
E30.8	18.3	18.5	0.2	Below
E30.9	18.2	18.4	0.2	Below
E30.10	18.1	18.3	0.2	Below
E30.11	18.1	18.2	0.2	Below
E30.12	18.0	18.2	0.2	Below
E30.13	18.0	18.2	0.2	Below

ID	DM	DS	Change	Above/below standard
E30.14	18.0	18.1	0.1	Below
E30.15	18.0	18.1	0.2	Below
E30.16	17.9	18.1	0.2	Below
E30.17	17.9	18.1	0.1	Below
E30.18	17.9	18.1	0.1	Below
E30.19	17.9	18.1	0.2	Below
E30.20	17.9	18.1	0.2	Below

Table 1.7: Phase 1 detailed assessment nitrogen deposition results in kilograms of Nitrogen per hectare per year (kg N/ha/yr)

ID	Critical load	DM	DS	Change	Change against lower critical load (%)
E30	20	23.8	24.3	0.5	2.7
E30.1	20	22.1	22.4	0.3	1.4
E30.2	20	21.5	21.7	0.2	1.0
E30.3	20	21.1	21.3	0.1	0.7
E30.4	20	20.9	21.0	0.1	0.6
E30.5	20	20.7	20.8	0.1	0.5
E30.6	20	20.6	20.7	<0.1	0.4
E30.7	20	20.5	20.6	<0.1	0.4
E30.8	20	20.4	20.5	<0.1	0.3
E30.9	20	20.4	20.5	<0.1	0.3
E30.10	20	20.3	20.4	<0.1	0.3
E30.11	20	20.3	20.4	<0.1	0.3
E30.12	20	20.3	20.3	<0.1	0.2
E30.13	20	20.3	20.3	<0.1	0.2
E30.14	20	20.2	20.3	<0.1	0.2
E30.15	20	20.2	20.3	<0.1	0.2
E30.16	20	20.2	20.2	<0.1	0.2
E30.17	20	20.2	20.2	<0.1	0.2
E30.18	20	20.2	20.2	<0.1	0.2
E30.19	20	20.2	20.2	<0.1	0.2
E30.20	20	20.1	20.2	<0.1	0.2

## Assessment Phase 2b

### Human Receptors

1.3.10 The results for assessment Phase 2b for NO<sub>2</sub>, PM<sub>10</sub> and PM<sub>2.5</sub> are provided in Table 1.8 to Table 1.10. The detailed assessment of the receptors at greatest risk of material changes predicted a slight beneficial impact for PM<sub>2.5</sub> at receptors H42 and H298. The detailed assessment predicted negligible impacts for the other assessed receptors and phases as a result of the updated traffic. All of the impacts predicted are **not significant**.

Table 1.8: Phase 2b detailed assessment NO<sub>2</sub> results (µg/m<sup>3</sup>)

ID	DM	DS	Change	Impact
H42	14.1	14.3	0.2	Negligible
H114	13.8	14.8	1.0	Negligible
H182	13.4	14.6	1.1	Negligible
H217	13.5	14.6	1.0	Negligible
H298	14.1	14.3	0.2	Negligible
H377	14.0	14.9	0.9	Negligible
H378	13.5	14.3	0.9	Negligible
H413	12.6	12.8	0.2	Negligible
H448	12.5	12.7	0.2	Negligible

Table 1.9: Phase 2b detailed assessment PM<sub>10</sub> results (µg/m<sup>3</sup>)

ID	DM	DS	Change	Impact
H42	14.8	14.6	-0.2	Negligible
H114	14.6	14.7	<0.1	Negligible
H182	14.5	14.6	<0.1	Negligible
H217	14.4	14.4	<0.1	Negligible
H298	14.8	14.6	-0.2	Negligible
H377	14.6	14.6	<0.1	Negligible
H378	14.5	14.5	<0.1	Negligible
H413	13.8	13.8	<0.1	Negligible
H448	13.8	13.8	<0.1	Negligible

Table 1.10: Phase 2b detailed assessment PM<sub>2.5</sub> results (µg/m<sup>3</sup>)

ID	DM	DS	Change	Impact
H42	10.1	10.0	-0.1	Slight beneficial

ID	DM	DS	Change	Impact
H114	10.0	10.1	<0.1	Negligible
H182	9.9	10.0	<0.1	Negligible
H217	9.9	9.9	<0.1	Negligible
H298	10.1	10.0	-0.1	Slight beneficial
H377	10.0	10.0	<0.1	Negligible
H378	10.0	10.0	<0.1	Negligible
H413	9.4	9.5	<0.1	Negligible
H448	9.4	9.5	<0.1	Negligible

### *Ecological Receptors*

1.3.11 The ecological receptor results for assessment Phase 2b for NO<sub>x</sub> and nitrogen deposition are provided in Table 1.11 and Table 1.12. The results have been passed to the project ecologist to determine significance which is described in Section 1.7 of this report.

Table 1.11: Phase 2b detailed assessment NO<sub>x</sub> results (µg/m<sup>3</sup>)

ID	DM	DS	Change	Above/below standard
E37	15.3	16.8	1.5	Below
E37.1	14.8	16.0	1.2	Below
E37.2	14.7	15.8	1.2	Below
E37.3	14.6	15.6	1.0	Below
E37.4	14.5	15.5	1.0	Below
E37.5	14.4	15.4	1.1	Below
E37.6	14.4	15.4	1.0	Below
E37.7	14.3	15.3	1.0	Below
E37.8	14.2	15.2	1.0	Below
E37.9	14.2	15.2	1.0	Below
E37.10	14.2	15.1	1.0	Below
E37.11	14.1	15.1	1.0	Below
E37.12	14.1	15.1	1.0	Below
E37.13	14.0	15.0	0.9	Below
E37.14	14.0	15.0	1.0	Below
E37.15	14.0	14.9	1.0	Below
E37.16	13.9	14.9	0.9	Below
E37.17	13.9	14.8	0.9	Below

ID	DM	DS	Change	Above/below standard
E37.18	13.9	14.8	1.0	Below
E37.19	13.8	14.8	1.0	Below
E37.20	13.8	14.7	0.9	Below
E49	18.4	19.2	0.7	Below
E49.1	17.1	17.6	0.6	Below
E49.2	16.4	16.9	0.5	Below
E49.3	16.1	16.5	0.4	Below
E49.4	15.9	16.2	0.4	Below
E49.5	15.8	16.1	0.3	Below
E49.6	15.7	16.0	0.2	Below
E49.7	15.8	16.0	0.2	Below
E49.8	15.9	16.1	0.2	Below
E49.9	16.0	16.2	0.2	Below
E49.10	16.3	16.4	0.2	Below
E49.11	16.6	16.7	0.1	Below
E49.12	16.8	16.9	0.1	Below
E49.13	17.0	17.1	0.1	Below
E49.14	17.1	17.2	0.1	Below
E49.15	17.0	17.1	0.1	Below
E49.16	16.9	17.0	0.1	Below
E49.17	16.7	16.8	0.1	Below
E49.18	16.6	16.7	0.1	Below
E49.19	16.5	16.7	0.1	Below
E49.20	16.5	16.6	<0.1	Below
E50	20.0	19.9	-0.2	Below

Table 1.12: Phase 2b detailed assessment nitrogen deposition results (kg N/ha/yr)

ID	Critical load	DM	DS	Change	Change against lower critical load (%)
E37	10	36.2	37.0	0.8	7.8
E37.1	10	35.6	36.0	0.4	4.1
E37.2	10	35.4	35.7	0.3	2.9



ID	Critical load	DM	DS	Change	Change against lower critical load (%)
E37.3	10	35.3	35.6	0.2	2.4
E37.4	10	35.2	35.5	0.2	2.2
E37.5	10	35.2	35.4	0.2	2.0
E37.6	10	35.1	35.3	0.2	1.9
E37.7	10	35.1	35.3	0.2	1.9
E37.8	10	35.1	35.3	0.2	1.9
E37.9	10	35.0	35.2	0.2	1.9
E37.10	10	35.0	35.2	0.2	1.9
E37.11	10	35.0	35.2	0.2	1.9
E37.12	10	35.0	35.2	0.2	1.9
E37.13	10	34.9	35.1	0.2	1.9
E37.14	10	34.9	35.1	0.2	1.9
E37.15	10	34.9	35.1	0.2	1.9
E37.16	10	34.9	35.1	0.2	1.9
E37.17	10	34.9	35.1	0.2	1.9
E37.18	10	34.9	35.1	0.2	1.9
E37.19	10	34.9	35.1	0.2	1.9
E37.20	10	34.8	35.0	0.2	1.9
E49	10	42.4	43.2	0.8	7.9
E49.1	10	40.5	41.1	0.6	5.8
E49.2	10	39.7	40.1	0.4	4.5
E49.3	10	39.2	39.5	0.4	3.6
E49.4	10	38.8	39.1	0.3	2.9
E49.5	10	36.9	37.1	0.2	2.4
E49.6	10	38.6	38.8	0.2	2.0
E49.7	10	38.6	38.8	0.2	1.6
E49.8	10	38.7	38.8	0.1	1.2
E49.9	10	38.9	39.0	<0.1	0.9
E49.10	10	39.2	39.2	<0.1	0.5
E49.11	10	39.5	39.5	<0.1	0.1
E49.12	10	39.8	39.8	<0.1	-0.2
E49.13	10	40.0	40.0	<0.1	-0.4
E49.14	10	40.1	40.0	-0.1	-0.6

ID	Critical load	DM	DS	Change	Change against lower critical load (%)
E49.15	10	40.0	40.0	-0.1	-0.6
E49.16	10	39.8	39.8	-0.1	-0.5
E49.17	10	39.6	39.6	<0.1	-0.4
E49.18	10	39.5	39.5	<0.1	-0.3
E49.19	10	39.4	39.4	<0.1	-0.3
E49.20	10	39.4	39.3	<0.1	-0.4
E50	10	44.2	43.9	-0.3	-3.0

## Air Quality Review Conclusion

- 1.3.12 A detailed assessment was undertaken for road links for which the updated traffic changes were not screened out. The assessment found no significant impacts for human receptors along these road links as a result of the updated traffic, where there were increases in total volumes and the change between the updated DM and DS scenario. Therefore, the updated traffic is not considered to materially change the results and conclusions reported in **Chapter 7 Air Quality Revision 1 of the ES [AS-076]**, nor are there any new significant impacts predicted. The implications of the updated air quality modelling for ecological receptors are considered in Section 1.7 of this report.

## 1.4 Traffic and Transportation

- 1.4.1 In a similar process to that referred to in paragraph 18.5.29 of **Chapter 18 Traffic and Transportation of the ES [AS-030]**, information on traffic flows on 252 road links (219 two-way and 33 one-way) was extracted from the updated traffic data referred to in paragraph 1.1.1. The revised flows on the roads listed in Tables 1 to 4 of **ES Appendix 18.2: Selected Traffic Flow Modelling Results [APP-129]** have been assessed using the methodology set out in **ES Appendix 18.1: Traffic and Transportation Methodology [APP-128]**.

### Changes to Traffic Flows

- 1.4.2 Prior to the more detailed review of the effects, an analysis of the change in the traffic flows has been undertaken in order to identify the scale of change. This has been based on the roads referred to in paragraph 1.4.1 above.
- 1.4.3 The growth has been calculated as a weighted average for the six categories of road. The weighting is based on the AADT flows that were used in the original ES assessment and these are set out in Table 1.13.

Table 1.13: Growth in AADT flows due to the Proposed Development

Road category	2Assessment Phase 1	Assessment Phase 2a	Assessment Phase 2b
Access route to and from the M1	-1.6%	-2.4%	-3.7%
Access route to and from the A1(M)	-2.0%	-3.6%	-4.4%
Other A roads	0.9%	-2.0%	-4.0%
Other urban local roads	1.1%	-2.0%	-2.9%
Rural roads to east and north of the airport	1.1%	-7.1%	-8.5%
Rural roads to west and south of the airport	-3.6%	-5.6%	-5.4%
Airport roads	-2.9%	-0.3%	-2.0%

1.4.4 This analysis shows that for Assessment Phase 1 there is a small increase in the predicted flows in some areas, , whereas on the main access routes to the airport there is a fall.

1.4.5 In Assessment Phase 2a and 2b the AADT flows in Table 1.13 show a reduction in the level of traffic in all areas. The change on the airport roads is less because a high proportion of the traffic is related to the growth of the airport rather than external factors that are the more dominant influence elsewhere.

### Review of environmental effects

1.4.6 The predicted general trend is for non-airport traffic to experience a lower level of growth than was allowed for in the original assessment, whereas the level of airport traffic remains as it was before. Since environmental effects of the Proposed Development are based on the difference in the level of traffic without and with the Proposed Development, a reduction in the non-airport traffic raises the potential for the proportional change in traffic flows to increase in assessment Phase 2a and 2b and in certain areas in assessment Phase 1.

1.4.7 The following paragraphs present the review of each of the following environmental issues:

- a. Severance.
- b. Driver stress and delay.
- c. Pedestrian delay.
- d. Pedestrian amenity (fear and intimidation).
- e. Collisions and safety.
- f. Hazardous loads

1.4.8 The effect of the additional rail passengers has not been reassessed because the factors that have influenced traffic growth do not affect the modal shares and therefore, there is no change.

### ***Construction Effects (All Assessment Phases)***

- 1.4.9 The potential effect of the construction traffic for all assessment phases has been reviewed using the revised traffic flow predictions and it was found that none of the increases associated with the construction traffic exceed the threshold of 30%, or 10% for sensitive links. Thus, as reported in **Chapter 18 of the ES [AS-030]**, there are **no significant** effects and no further assessment on these road links is required for this review.

### ***Operational Effects - Assessment Phase 1***

#### **Severance**

- 1.4.10 In paragraph 18.9.19 of **Chapter 18 of the ES [AS-030]** it was reported that in Assessment Phase 1 there were no road links that were identified as requiring detailed assessment; therefore, there would be no significant effects due to severance. This updated assessment has similarly identified no road links as requiring detailed assessment therefore the original conclusion remains unchanged.

#### **Driver stress and delay**

##### ***Driver Stress***

- 1.4.11 The first sift of the changes in the level of driver stress identified eight links that required detailed assessment. On five links there was 'no effect' and on two links, which together form Percival Way between New Airport Way and Frank Lester Way there would be a beneficial effect that would be classified as either 'no effect' or 'negligible'. The decrease in the traffic flow on Percival Way, is only just above the level of 30% which is referred to as Rule 1 in paragraph 2.2.1 of ES **Appendix 18.1: Traffic and Transportation Methodology [APP-128]**. In the light of this it is considered that there would be a **negligible** beneficial effect which is **not significant**.
- 1.4.12 The remaining link is the section of Eaton Green Road between Mistletoe Hill and Frank Lester Way. This link had not been identified for detailed assessment because the increase in the flow was only 23% in the ES, which is below the threshold of 30% referred to in Rule 1 identified in the preceding paragraph. With the revised traffic flow predictions, the increase rises to 53% which is principally the result of the Do Minimum flow reducing by 20%. When determining which of these alternative levels the effect should be, it is noted that, had the increase taken the flow above the next threshold, the magnitude of impact would have remained the same. Therefore, in order to differentiate between the effect of these different levels of the magnitude of impact it is considered that there would be a **negligible** adverse effect which is **not significant**.

##### ***Driver Delay***

- 1.4.13 The initial review of the revised traffic flow predictions did not identify any road links that required detailed assessment. Therefore there are **no significant** effects.

## Pedestrian delay

- 1.4.14 A single link, Eaton Green Road between Vauxhall Way and Brendon Avenue, is identified on which the increase is greater than the threshold for detailed assessment and there is a change in pedestrian delay that is calculated to exceed ten seconds. The magnitude of impact is low on a receptor of medium sensitivity, and produces an effect that is a **negligible** adverse effect that is **not significant**.

## Pedestrian Fear and Intimidation

- 1.4.15 The first sift of the revised traffic flows identified a single road link that required detailed assessment. This link is the same section of Eaton Green Road that was reviewed for pedestrian delay. The assessment produced the same magnitude of impact which required a judgement regarding the level of the effect. For the same reasons as set out in the previous paragraph it is considered that there would be a **negligible** adverse effect that is **not significant**.

## Collisions and safety

- 1.4.16 Having followed the process that was described in paragraph 18.9.27 of **Chapter 18 of the ES [AS-030]** a similar result was obtained, that is that there would be no junctions where the increase in the inbound flow passed the threshold for detailed assessment. Therefore, there are **no significant** effects identified.

## Hazardous Loads

- 1.4.17 The assessment of this effect is not related to traffic flows. Therefore, the changes will not affect the assessment and the conclusions that were reported in **Chapter 18 of the ES [AS-030]** are unchanged. The conclusion set out in Chapter 18 of the ES, namely that there would be a **negligible** adverse effect, remains unchanged. There are therefore **no significant** effects identified.

## *Operational Effects - Assessment Phase 2a*

### Severance

- 1.4.18 The comparison of the assessment of severance between the revised traffic data and the original traffic data has found that the number of links that required detailed assessment reduces by one and the outcome in terms of the environmental effect would be unchanged for this assessment phase. As a consequence, the conclusion therefore remains that for Assessment Phase 2a there would be **no significant** effects.

## Driver Stress and Delay

### *Driver Stress*

- 1.4.19 Six road links were listed in Table 18.18 of **Chapter 18 of the ES [AS-030]** as requiring detailed assessment following the first sift and were then identified as having a change in the level of driver stress. The road links were the slip road

from A1081 London Road to A1081 New Airport Way, three sections of Eaton Green Road between Frank Lester Way and Wigmore Lane, and two sections of Percival Way between Airport Way and Provost Way.

- 1.4.20 Percival Way and three sections on Eaton Green Road were also identified for detailed assessment in Section 18.9 of **Chapter 18 of the ES [AS-030]** the ES. However, using the updated traffic data the section between Wigmore Lane and the Eaton Green Road Link no longer merited detailed assessment, but the section between Mistletoe Hill and Frank Lester Way did.
- 1.4.21 The decrease in the traffic flow along Eaton Green Road between Frank Lester Way and the Eaton Green Road Link is predicted to be 66%, whereas on the section between Frank Lester Way and Mistletoe Hill, it is 47%. This difference is explained by traffic transferring from Frank Lester Way and Eaton Green Road to the Airport Access Road (AAR) and the Eaton Green Road Link. The magnitude of impact for all three sections is ‘very low’ which means that a judgement is required for the level of the effect. The conclusion is that between Frank Lester Way and the Eaton Green Road there will be a **negligible** beneficial effect which is **not significant** and between Frank Lester Way and Mistletoe Hill there is **no effect**.
- 1.4.22 It was reported in paragraph 18.9.74 of the ES **[AS-030]** that the slip road on the A1081 connecting London Road to New Airport Way experienced a **minor** adverse effect which was **not significant**. The revised flows have led to a reduction in the increase in the level of traffic on the slip road to the extent that it has fallen below 30% and no longer warrants detailed assessment. Therefore, there is **no effect** in relation to this slip road when considered in the light of the revised traffic flow predictions.

**Driver Delay**

- 1.4.23 The initial investigation of the revised traffic flow predictions for this assessment phase identified the three road links listed in Table 1.14 as requiring detailed assessment. Level of Service (LOS) is a quantitative stratification of a performance measure or measures that represent quality of service as described in paragraphs 2.2.13 to 2.2.17 and Table 2.5 of **Appendix 18.1 of the ES [APP-128]**. Note that where a link is provided as part of the Proposed Development it does not exist in the DM scenario, therefore the table entry is not applicable (N/A).

Table 1.14: Magnitude of impact for driver delay (2039)

Road Link	AM Peak			PM Peak			Magnitude of Impact
	DM LOS	DS LOS	Add', Delay (secs)	DM LOS	DS LOS	Add', Delay (secs)	
Wigmore Lane/ Wigmore Park District Shopping Centre	A	B	13	A	C	13	Very Low

Road Link	AM Peak			PM Peak			Magnitude of Impact
	DM LOS	DS LOS	Add', Delay (secs)	DM LOS	DS LOS	Add', Delay (secs)	
Airport Access Road (AAR)/Eaton Green Road Link/T2 Access Road	N/A	C	28	N/A	C	24	Low
A1081 New Airport Way/Airport Access Road	N/S	B	14	N/A	B	15	Very Low

- 1.4.24 For the two road links where the magnitude of impact is rated ‘very low’ the combination with a driver sensitivity of ‘medium’ results in a **negligible** adverse effect which is **not significant**.
- 1.4.25 For Airport Access Road (AAR)/Eaton Green Road Link/T2 Access Road (a link of medium sensitivity) the equivalent delay, the calculation of which is described in **paragraph 2.2.15 of ES Appendix 18.1: Traffic and Transportation Methodology [APP-128]**, has a value of 2.4 which means that it is in the lower half of the range for this level of magnitude. A further consideration is that this will be a new junction and at this stage the modelling is based on a preliminary junction layout. It can be expected that when the detailed design is undertaken, refinements to the design will be introduced that will reduce the overall delay at the junctions. It is considered that the effect on driver delay at this junction will be a **negligible** adverse effect which is **not significant**.
- 1.4.26 It was reported in paragraph 18.9.77 of **Chapter 18 of the ES [AS-030]** that there would be a minor beneficial effect at the junction of New Airport Way and Airport Way. This occurred because of congested conditions at the junction during the evening peak for the ‘Do Minimum’ scenario. A consequence of the revised flows is that during the evening peak the LOS reduces/improves from ‘F’ to ‘C’, where level ‘F’ is heavy congestion and level ‘C’ is light congestion with occasional backups on critical approaches. In the morning peak for both scenarios and the evening peak for the ‘Do Something’ scenario there is a LOS value of ‘A’, which applies to both sets of traffic flow predictions. With such a reduction/improvement, the junction is no longer identified for detailed assessment and there would no longer be a minor beneficial effect at the junction, which was **not significant**.

**Pedestrian Delay**

- 1.4.27 An additional four road links were identified for detailed assessment when compared with the original traffic data. Having calculated the delay on all of the identified links, none were found to experience a change in the pedestrian delay that either increased or decreased by more than 10 seconds. Therefore, with the revised growth there are **no significant** effects.

### Pedestrian Fear and Intimidation

- 1.4.28 The review of the calculation of the magnitude of impact associated with the change in flow between the scenarios identified only five road sections where the value was not 'no change' and required detailed assessment; in all cases the value was 'low'. The conclusion written in paragraph 18.9.81 of **Chapter 18 of the ES [AS-030]** that the Proposed Development results in **no significant** effect along the AAR is unchanged.
- 1.4.29 Wigmore Lane between its junctions with Crawley Green Lane and Twyford Drive has been assigned a high level of sensitivity for pedestrians due to the proximity of Wigmore Primary School. The magnitude of impact changes from no classification in the Do Minimum scenario (<600) to moderate in the Do Something scenario, as a result of the average hourly flow over an 18 hour period increasing from 522 to 602 vehicles. The moderate level for magnitude of impact applies to flows in the range of 600 to 1,200 vehicles. However, as the predicted flow is only 2 vehicles above the threshold to be classified under 'degree of hazard' in the lower end of that scale it is considered, using professional judgment as outlined in the methodology, that the appropriate classification is a **negligible** adverse effect which is **not significant**.
- 1.4.30 The situation on St Mary's Road between Park Viaduct and Church Street is very similar to that predicted to occur on Wigmore Lane as described above. The change in flows is from 547 to 619 vehicles, and it is considered that the same conclusion can be drawn, which is that the appropriate classification is a **negligible** adverse effect which is **not significant**.

### Collisions and safety

- 1.4.31 Two junctions exceeded the threshold for detailed assessment and the predicted annual Personal Injury Collision (PIC) rates for Assessment Phase 2a are presented in the Table 1.15 below. This is one less than was reported in Table 18.17 of **Chapter 18 of the ES [AS-030]**. The junction of Crawley Green Road and Lalleford Road no longer warrants detailed assessment as the change in the PIC rate falls below the threshold. The table also includes the details on the changes between the Do Minimum and Do Something for both the predicted PIC rates and junction traffic flows together with the calculated magnitude of impact.

Table 1.15: Review of changes in PICs (Assessment Phase 2a, 2039)

Road Section (link sensitivity)	2039 DM Rate (PICs/ Year)	2039 DS Rate (PICs/ Year)	Change in 2039 PIC Rate	Change in Flow Through' Jct.	Magnitude of Impact	Effect
Crawley Green Road/Ashcroft Road (medium)	0.45	0.25	-0.20	20.4%	Very Low	Adverse negligible



Road Section (link sensitivity)	2039 DM Rate (PICs/ Year)	2039 DS Rate (PICs/ Year)	Change in 2039 PIC Rate	Change in Flow Through' Jct.	Magnitude of Impact	Effect
Eaton Green Road/Frank Lester Way (medium)	1.01	0.16	-0.85	-59.2%	Low	Beneficial minor

1.4.32 The determination of the effect at the junction of Eaton Green Road and Frank Lester Way arrives at the same conclusion as described in paragraph 18.9.85 of **Chapter 18 of the ES [AS-030]** that the environmental effect is **minor** beneficial, which is **not significant**.

**Hazardous Loads**

1.4.33 The assessment of this effect is not related to traffic flows, therefore the changes will not affect the assessment and the conclusions that were reported in **Chapter 18 of the ES [AS-030]** are unchanged which is that for 2039 there would be **no change**.

**Operational Effects - Assessment Phase 2b**

**Severance**

1.4.34 The comments regarding the road links identified in paragraphs 18.9.117 to 18.9.126 of **Chapter 18 of the ES [AS-030]** remain valid in the light of the revised traffic flow predictions. However, the change in the flows has resulted in two additional links being identified as requiring detailed assessment.

1.4.35 Both of the additional links form part of Wigmore Lane; these are the section between Sowerby Avenue and Green Lane and the section between Crawley Green Road and Twyford Drive and in both instances there is an increase in traffic between the Do Minimum and Do Something scenarios. Along the first section of Wigmore Lane the magnitude of impact is calculated to be low on a receptor of medium sensitivity. The percentage increase in traffic between the Do Minimum and Do Something scenarios that determines the magnitude of impact is in the upper half of the range that produces that level. Therefore, it has been determined that there would be a **minor** adverse effect which is **not significant**.

1.4.36 The classification of the effect along the section of Wigmore Lane between Crawley Green Road and Twyford Drive required the following detailed assessment. The magnitude of impact is medium, but the link is classified as having a high level of sensitivity for pedestrians because of the location of Wigmore Primary School at the northern end of Twyford Drive. There is therefore the potential for a moderate adverse effect. This purely quantitative assessment does not take account of the upgrade of pedestrian crossing facilities that are incorporated into the committed mitigation measures (Work No. 6e(e) **Transport Assessment Appendices - Part 1 of 3 (Appendices A-E) [APP-200]** so committed as part of the Proposed Development). At present there is a roundabout at each end of this section of Wigmore Lane. The

pedestrian crossing facilities consist of dropped kerbs and splitter islands across all entries to the roundabouts. The proposed mitigation measures are shown in **drawing LLADCO-3C-ARP-SFA-HWM-CE-0012** which can be found in **Appendix A** of the **Transport Assessment [APP-200]**. This drawing shows that both roundabouts are to be replaced by traffic signal controlled junctions that incorporate controlled pedestrian crossing facilities, thereby introducing safer crossing of these roads for parents and children. The upgrade would be introduced as part of the mitigation measures anticipated in assessment Phase 2a. In the light of the safer crossing facilities, it is considered that the effect on this section of Wigmore Lane will be **minor** adverse and **not significant**.

### Driver stress and delay

#### Driver Stress

1.4.37 The first sift of the changes in the level of driver stress identified 35 road links that required detailed assessment, which is three more than were reported in **Chapter 18 of the ES [AS-030]**. On thirty of those links there is no change in the level of driver stress. The four links identified in Table 18.21 of **Chapter 18 of the ES [AS-030]** are included in the five that require detailed assessment. The details for those links are unchanged, therefore the conclusions set out in the ES for those sections of the highway network are unchanged. The details of the additional link are set out in the Table 1.16 below.

Table 1.16: Road links assessed for change in driver stress (2043)

Road Section	Level of Driver Stress		Magnitude of Impact of Change	Driver Sensitivity	Effect
	Do Minimum	Do Something			
Wigmore Lane between Sowerby Avenue and Green Lane	Moderate	High	Low	Medium	Adverse Negligible or Minor

1.4.38 For this link it is necessary to determine which of the two options for the effect applies. This link was not identified in the analysis for the ES because the increase in the average flow unit/hour/lane increased by 29.6% which was below the threshold of 30% for a road link that did not have a high level of sensitivity. With the revised traffic flow predictions, the increase has become 30.03%. There has been little change in the conditions on this section with the levels of driver stress unchanged between the two sets of data. In the light of the limited change, it is considered that there would be a **negligible** adverse effect which is **not significant**.

#### Driver Delay

1.4.39 The initial investigation of the revised traffic flow predictions for this assessment phase identified the two road links listed in Table 1.17 as requiring detailed assessment which is then provided below.

Table 1.17: Magnitude of impact for driver delay (2043)

Road Link	AM Peak			PM Peak			Magnitude of Impact
	DM LOS	DS LOS	Add', Delay (secs)	DM LOS	DS LOS	Add', Delay (secs)	
AAR/Eaton Green Road Link/T2 Access Road	N/A	C	28	N/A	D	38	Low
A1081 New Airport Way/Airport Access Road	N/A	B	13	N/A	B	13	Very Low

1.4.40 Similar to the case for assessment Phase 2a, there are two options for the level of the effect on the junction between the AAR and the access road to Terminal 2, 'negligible' or 'minor'. By 2043 the 'equivalent delay' has a value in the upper half of the range which would indicate a level of effect that would be 'minor'. However, this should be tempered by the consideration expressed in paragraph 1.4.25 that the junction layout considered in the VISSIM model is a preliminary layout. It would be expected that the refinements to the design that would include phasing and physical layout would result in a LOS that in 2043 would be no greater than 'C' for which the operation of the junction is described as 'stable flow (acceptable delays)' (Table 10.5 of the Transport Assessment [APP-205]) whereas level 'D' is described as 'approaching unstable flow'. It is therefore considered that there would be a **negligible** adverse effect at both junctions which is **not significant**.

**Pedestrian Delay**

1.4.41 The number of links that were identified as requiring detailed assessment increased by three when compared with the original predicted traffic flows. When the change in pedestrian delay was calculated for those links that were identified for detailed assessment, only the two that were identified in the analysis based on the original traffic flow predictions were found to require detailed assessment which found that the conclusion was the same, that is there is **no significant** effect.

**Pedestrian Fear and Intimidation**

1.4.42 With the revised flows, the road links that required detailed assessment are set out in Table 1.18. There are three road links where there is a change in the magnitude of impact that is classified as medium and five road links where there is a change in the magnitude of impact that is classified as low. Details of the degree of hazard for the Do Minimum and Do Something scenarios, together with the resultant magnitude of impact and the resulting effect are set out in Table 1.18. In Table 1.18 there are no entries in the second column apart from the section of the AAR between Provost Way and Frank Lester Road. Where the column is blank this is because the link does not exist in the Do Something network or the flow is less than 600 vehicles. Where, in the final column, there

are options for the potential effect which results from the combination of magnitude of impact and the degree of sensitivity, the judgement that has been made to determine which level is applicable is set out in the paragraph following the table.

Table 1.18: Road links requiring detailed assessment, Assessment 2b(2043)

Road Section	Degree of Hazard		Magnitude of Impact	Sensitivity	Potential Effect
	Do Minimum	Do Something			
Wigmore Lane between Crawley Green Road and Twyford Dr	N/A	Moderate	Low	High	Negligible
St Mary's Road between Park Viaduct and Church Street	N/A	Moderate	Low	High	Negligible
AAR between A1081 New Airport Way and Provost Way	N/S	Great	Medium	Very Low	Negligible
AAR between Provost Way and Frank Lester Way	Moderate	Great	Low	Low	No effect
President Way between Car Rental and Frank Lester Way (AAR in DS)	N/A	Great	Medium	Low	Minor
AAR between President Way and Eaton Green Road link	N/A	Great	Medium	Low	Minor
Access road to Terminal 2 from AAR	N/A	Moderate	Low	Low	No effect
Eaton Green Road link	N/A	Moderate	Low	Low	No effect

1.4.43 For both Wigmore Lane between Crawley Green Road and Twyford Drive, and St Mary's Road between Park Viaduct and Church Street, the increases in flows between the 'Do Minimum' and the 'Do Something' scenarios are 175 and 86 vehicles respectively. The degree of hazard increases in steps of 600 above 600 (as shown in Table 2.8 of **Appendix 18.1 of the ES [APP-128]**). The increases for both links are well below 600, therefore it is appropriate that the level of effect is **negligible** adverse which is **not significant**.

1.4.44 The two links that form part of the AAR shown in Table 1.18 would result in a **minor** adverse effect, a similar level of effect for the original traffic flow predictions, and therefore no change in the conclusions set out in **Chapter 18 of the ES [AS-030]** and there is **no significant** effect.

1.4.45 There is no change on the sections of the AAR to the west of Frank Lester Way and the links to Terminal 2 and Eaton Green Road.

**Collisions and safety**

1.4.46 The sift of junctions to identify those where the change in the inflow to the roundabout was in excess of the sensitivity threshold for detailed assessment, and where the change in flows resulted in a magnitude of impact that was greater than no change, produced two road links for the traffic flow predictions used in the analysis for the preparation of **Chapter 18 of the ES [AS-030]** but only one road link for the revised traffic flow predictions. Details for this road link are set out in Table 1.19.

Table 1.19: Review of changes in PICs (2043)

Road Section (receptor sensitivity)	2043 DM Rate (PICs/ Year)	2043 DS Rate (PICs/ Year)	Change in 2043 PIC Rate	Change in Flow Through' Jct.	Magnitude of Impact	Effect
Eaton Green Road/Frank Lester Way (medium)	1.00	0.16	-0.84	-60.9%	Medium	Beneficial moderate

1.4.47 In determining the level of effect, the characteristics of change in the PIC rate and the flows between the Do Minimum and Do Something scenarios set out in the above table were compared with the values in Table 18.24 of **Chapter 18 of the ES [AS-030]**. On the basis of the similarity, it was determined that the previous conclusion, namely that there will be a **moderate** beneficial effect which is **significant**, is unchanged.

**Hazardous Loads**

1.4.48 The assessment of this effect is not related to traffic flows and therefore the changes will not affect the assessment, and the conclusions that were reported in **Chapter 18 of the ES [AS-030]** are unchanged. Therefore, the conclusion for assessment Phase 2b is that there would be a **negligible** adverse effect which means that for this assessment phase there would be **no significant** effect.

**Summary of Changes to Traffic and Transportation Effects**

1.4.49 Table 18.26 in **Chapter 18 of the ES [AS-030]** summarised the effects that are significant and also those effects that are classified as minor, and not significant. The following table sets out the changes to the original table, providing the detailed assessment results for 2 additional links that required more detailed assessment as a result of the updated traffic data. The table does not include the column that has the title 'Embedded Good Practice Mitigation' as that is valid for all of the operational effects and therefore similarly applies to all new entries. Where a line is scored through, the effect that was identified in **Table 18.26** in the ES is no longer applicable when the revised traffic flows are

considered as the link no longer required detailed assessment using the screening methodology described in **Appendix 18.1 of the ES [APP-128]**.

Table 1.20: Revisions to Traffic and Transportation assessment summary

Impact	Magnitude	Receptor Sensitivity	Description of effect and significance	Additional Mitigation	Residual Effect
<b>Operation</b>					
Severance (Assessment Phase 2b) Wigmore Lane between Sowerby Avenue and Green Lane	Low	Medium: Pedestrian	Minor Adverse not significant	None required	Effect unchanged
Severance (Assessment Phase 2b) Wigmore Lane between Crawley Green Lane and Twyford Drive	Medium	High: Pedestrian	Minor Adverse not significant	None required	Effect unchanged
Driver Stress (Assessment Phase 2a) Slip road from A1081 London Road to A1081 New Airport Way WB	Low	Driver: Medium	Minor Adverse not significant	None required	Effect unchanged
Driver Delay (Assessment Phase 2a): A1081 New Airport Way/Airport Way	Low	Driver: Medium	Minor Adverse not significant	None required	Effect unchanged

1.4.50 From this table it can be seen that there is little change from the conclusions that were set out in **Chapter 18 of the ES [AS-030]**.

1.4.51 The change in traffic flow predictions does not result in any new or different significant effects to reported in the ES.

## 1.5 Greenhouse Gases

1.5.1 The Greenhouse Gas (GHG) emissions from passenger and staff surface access is based on travel data for travel by car, taxi (passengers only), bus and rail in passenger kilometres.

1.5.2 The updated traffic data does not affect the passenger and staff travel data used to estimate surface access emissions, therefore, there is no impact on these surface access emissions, or any other aspect of the GHG assessment presented in **Chapter 12 of the ES [REP3-007]**, as a result of the updated traffic data.

## 1.6 Health

1.6.1 Updates to the traffic data have the potential to affect the impacts of the Proposed Development on determinants of health, including noise, air quality, transport and access. No changes to the impacts on health determinants with the potential to change the health effects reported in **Chapter 13 of the ES [AS-078]** have been identified. This conclusion is based on the findings of the relevant topic assessments, which are summarised as follows:

- a. Noise: Negligible changes in surface access noise in all assessment phases, with the exception of 17 residential properties on Eaton Green Road, where a negligible increase in traffic noise during assessment Phase 1 is sufficient to change the magnitude of impact when calculating the difference between the DM and DS from negligible (0.1 to 0.9 dB) to minor (1.0 to 2.9 dB). This change is not considered to influence population health outcomes.
- b. Air quality: detailed assessment of the receptors at greatest risk of material changes concludes predicted negligible, not significant, impacts as a result of the updated traffic data in all assessment phases.
- c. Traffic and transportation: No significant effects were identified on severance, driver stress, driver delay, pedestrian delay or pedestrian fear and intimidation as reported in **Chapter 18 of the ES [AS-030]**.

## 1.7 Biodiversity

1.7.1 The critical level for NO<sub>x</sub> is still not forecast to be exceeded on any transect when using the Covid-19 scenario traffic data; this is no change from the original modelling.

1.7.2 There are several changes in nitrogen deposition at non-statutory wildlife sites, However, none materially alter the conclusions reported in sections 8.9, 8.11 and 8.14 of **Chapter 8 of the ES [AS-027]**, as described below:

- a. Nitrogen deposition at Church Cemetery in 2027 is forecast to fall below 1% of the critical load by 20m from the road under the Covid-19 update scenario, rather than by 10m from the road under the original DS scenario. However, the pattern of impact remains the same as was forecast under the original DS scenario.
- b. Nitrogen deposition at Slaughter's Wood and Green Lane in 2043 is forecast to be lower (better) under the Covid-19 update scenario (e.g. 0.78 kg N/ha/yr at 10m from the roadside compared to 1.24 kg N/ha/yr in the original modelling). The pattern of deposition remains the same as in the original modelling. Since the forecast deposition under the Covid-19 update is lower (better) the original modelling can be considered more precautionary.
- c. Nitrogen deposition at Kidney & Bulls Wood in 2043 is forecast to be lower (better) under the Covid-19 update scenario e.g. 0.58 kg N/ha/yr at 10m from the roadside compared to 1.58 kg N/ha/yr in the original modelling. The exception is at the roadside itself where nitrogen

deposition under the Covid-19 update scenario is forecast to be slightly higher (worse), being 0.79 kg N/ha/yr, compared to 0.49 kg N/ha/yr under the original modelling. Since the forecast deposition under Covid-19 update is lower (better) over the majority of the transect the original modelling can be considered more precautionary.

- d. Nitrogen deposition at Stockwood Park in 2043 is forecast to be slightly higher (worse) using the Covid-19 update scenario than in the original scenario (an improvement of 0.3 kg N/ha/yr due to the Proposed Development being forecast under the Covid-19 update scenario, compared to an improvement of 0.5 kg N/ha/yr under the original modelling). However, a small (not significant) net improvement compared to 2043 without the Proposed Development is still forecast, rather than a deterioration, so the interpretation does not change.

1.7.3 The conclusion of no significant effect for all sites that was made in **Chapter 8 of the ES [AS-027]** therefore remains unchanged.

## 1.8 Conclusion

1.8.1 The review of the revised traffic data to account for the Covid-19 update against the findings of the ES has concluded that there are no material changes to the conclusions. No new or different significant effects have been identified, with the exception of temporary road noise effects at 17 properties close to Eaton Green Road, between Vauxhall Way and Frank Lester Way, where noise levels are above the SOAEL. This is a result of the updated modelling no longer including the proposed dualling of Vauxhall Way in assessment Phase 1, which is delayed one or two years until completed in assessment Phase 2a, after which no significant effects remain. As this is temporary and localised, no new or different mitigation to that described in the ES is proposed or proportionate.



## GLOSSARY AND ABBREVIATIONS

Term	Definition
$\mu\text{g}/\text{m}^3$	Micrograms per meter squared
AADT	Annual Average Daily Traffic
AAR	Airport Access Road
AQMA	Air Quality Management Area
DM	Do Minimum
DS	Do Something
ES	Environmental Statement
ExA	Examining Authority
GHG	Greenhouse gases
HDV	Heavy-Duty Vehicle
IAQM/EPUK	Institute of Air Quality Management / Environmental Protection UK
kg N/ha/yr	Kilograms of Nitrogen per hectare per year
LDV	Light Duty Vehicle
LOS	Level of Service - a term used to qualitatively describe the operating conditions of a junction based on delay. The level of service of a junction is designated with a letter, A to F, with A representing the best operating conditions and F the worst.
N/A	Not applicable
NO <sub>2</sub>	Nitrogen Dioxide
NO <sub>x</sub>	Oxides of Nitrogen
PIC	Personal Injury Collision
PM	Particulate Matter
SOAEL	Significant Observed Adverse Effect Level

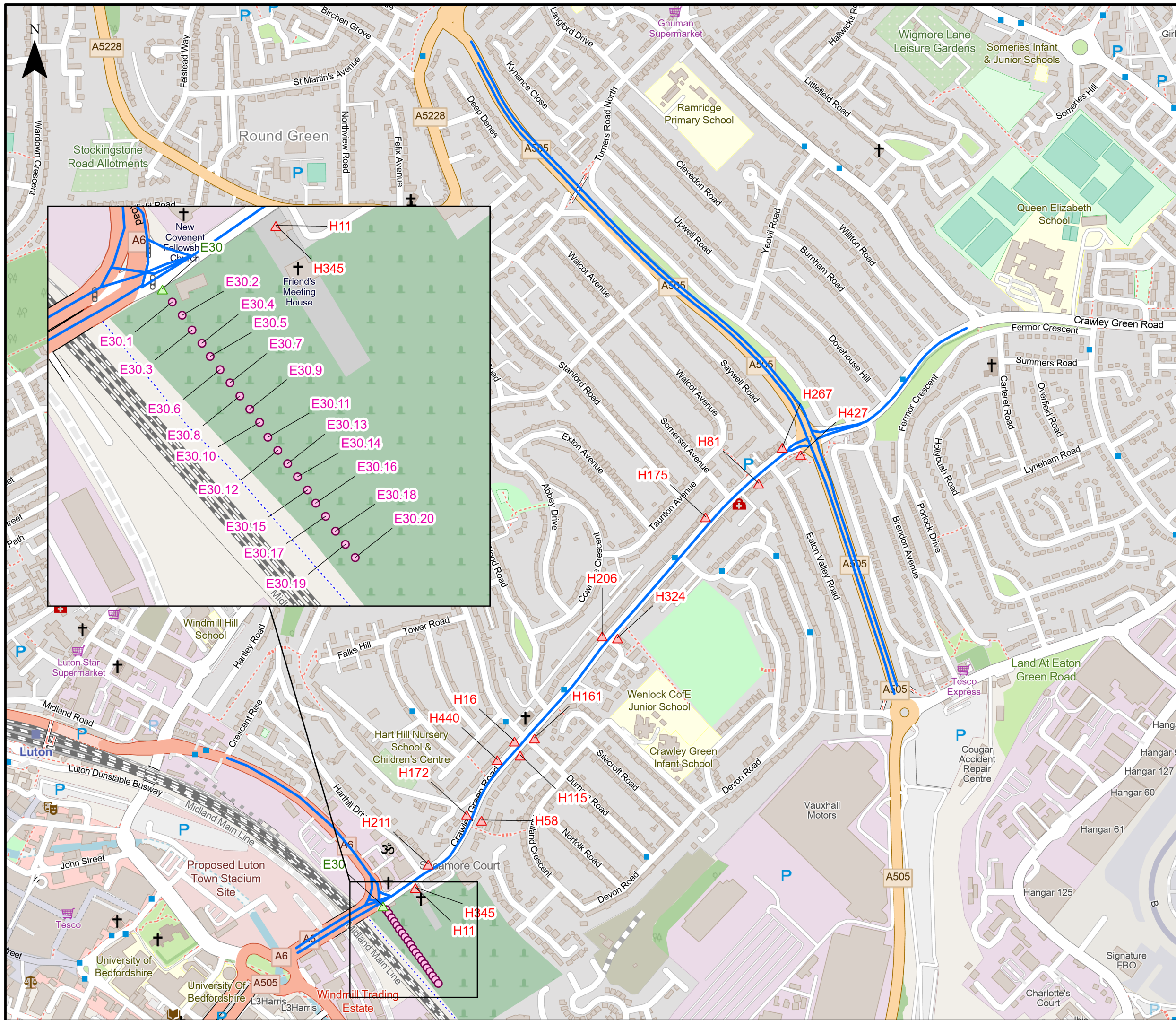
## REFERENCES

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Ref 1 Moorcroft and Barrowcliffe. et al. (2017) Land-use Planning & Development Control: Planning for Air Quality. v1.2, 2017. Institute of Air Quality Management, London.

Ref 2 Department for Environment Food and Rural Affairs. Emissions Factors Toolkit v12.0, December 2023. (Online)

## APPENDIX A



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### Legend

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- △ Modelled Ecological Receptor
- Modelled Road Network

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Deadline 7 - Additional Submissions	AB	TG	CS	09/01/24	P01
Revision History	Drawn	Checked	Approved	Date	Rev.



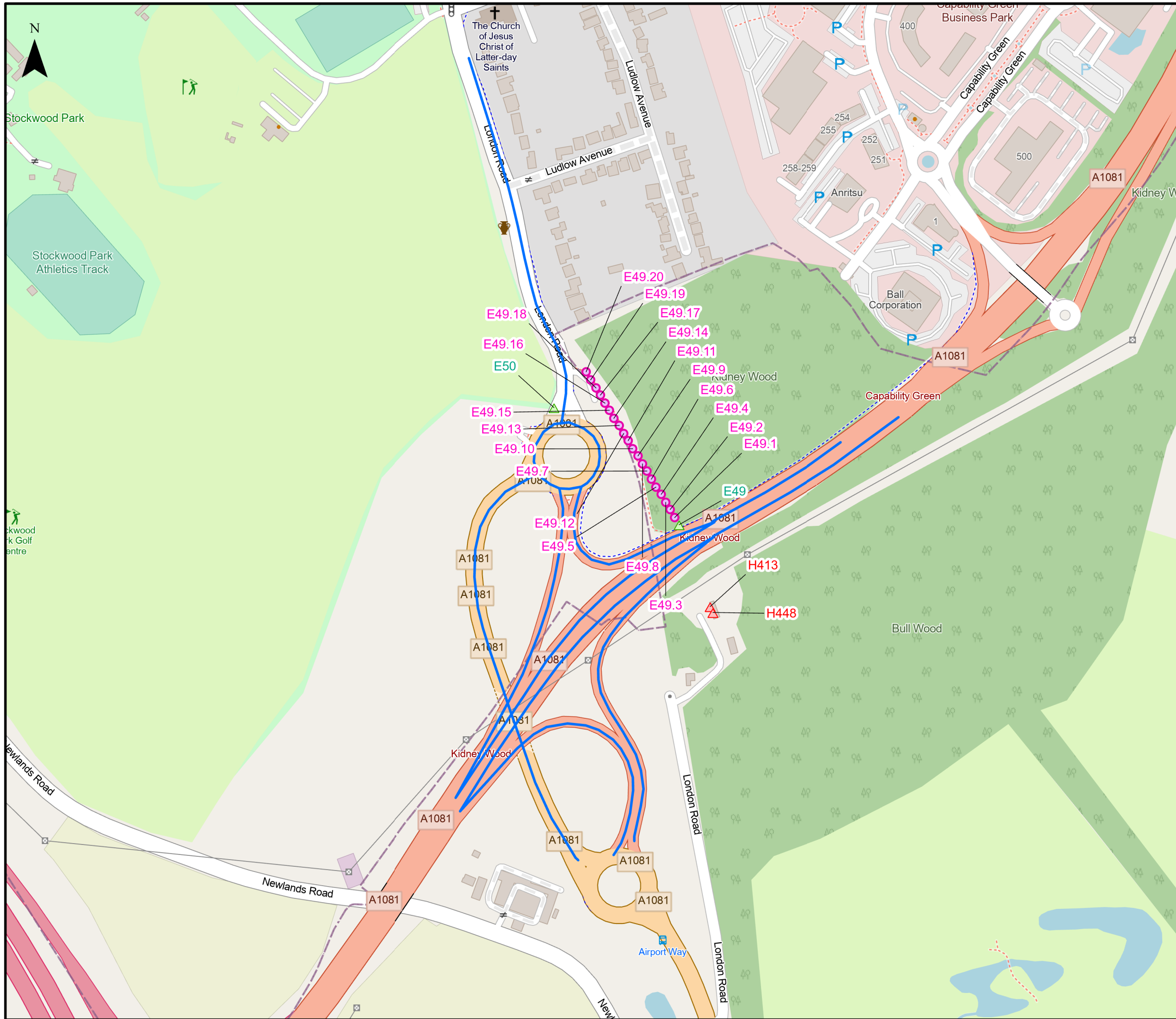
## London Luton Airport Expansion Development Consent Order

Drawing Title  
**Assessment Phase 1 Do-Minimum (DM) and Do-Something (DS) Model Extent**

Purpose of issue				Suitability		
Deadline 7 - Additional Submissions				S2		
Drawn	Checked	Approved	Date	Scale	Size	
AB	TG	CS	09/01/24	1:7,500	A3	

DCO Application Ref.	APFP Regulation	DCO Document Ref.
TR020001	N/A	TR020001/APP/5.03

Drawing Number	Revision
LLADCO-3C-ARP-00-00-DR-YE-0951	P01
Project - Phase - Originator - Asset/Zone - Sub Asset - Type- Discp. - Number	



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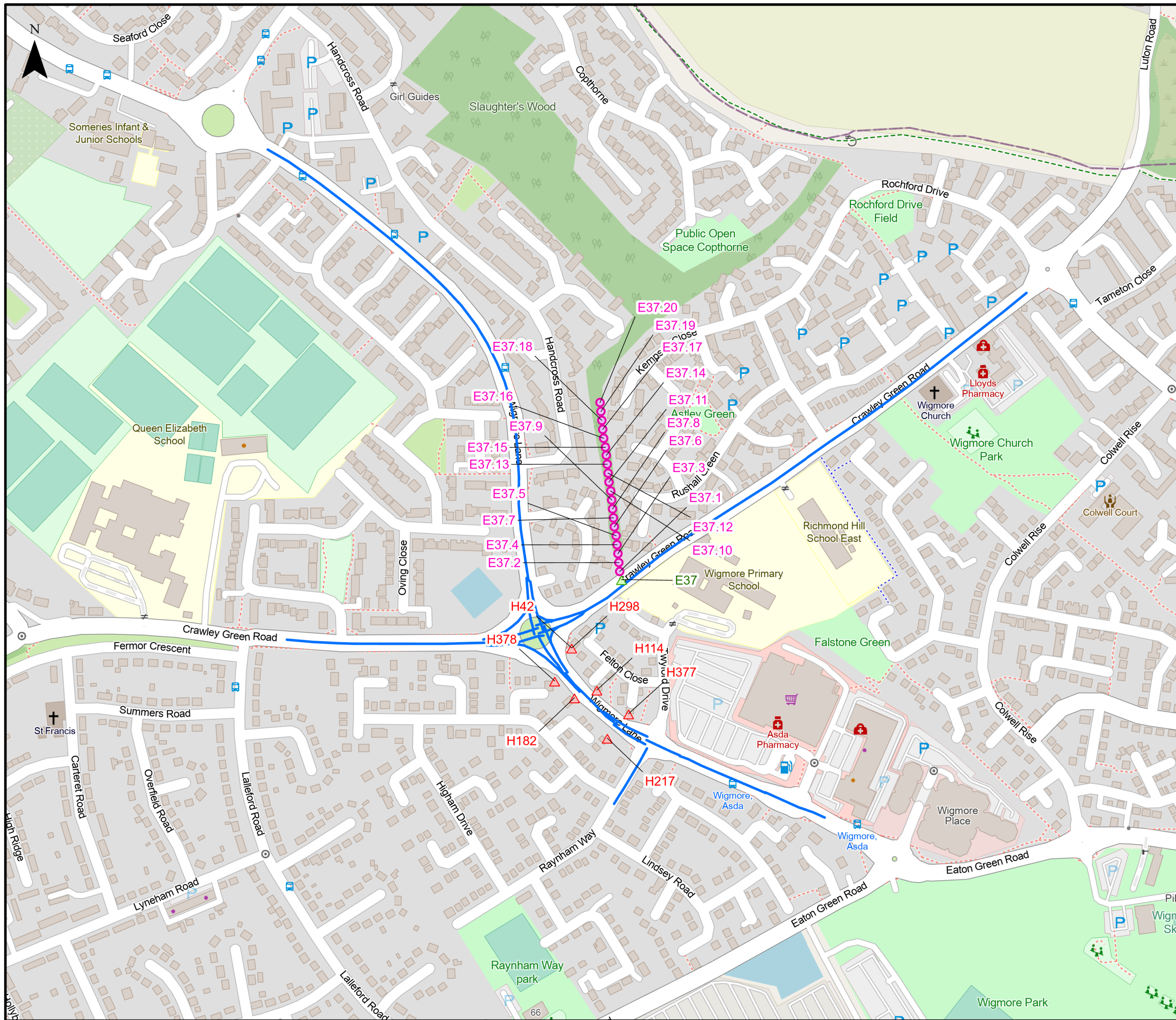
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Drawing Title  
**Assessment Phase 2b Do-Minimum (DM)  
 Model Extent  
 Page 1 of 2**

Purpose of issue				Suitability	
Deadline 7 - Additional Submissions				S2	
Drawn	Checked	Approved	Date	Scale	Size
AB	TG	CS	09/01/24	1:4,000	A3

DCO Application Ref.	APFP Regulation	DCO Document Ref.
TR020001	N/A	TR020001/APP/5.03

Drawing Number	Revision
LLADCO-3C-ARP-00-00-DR-YE-0952	P01
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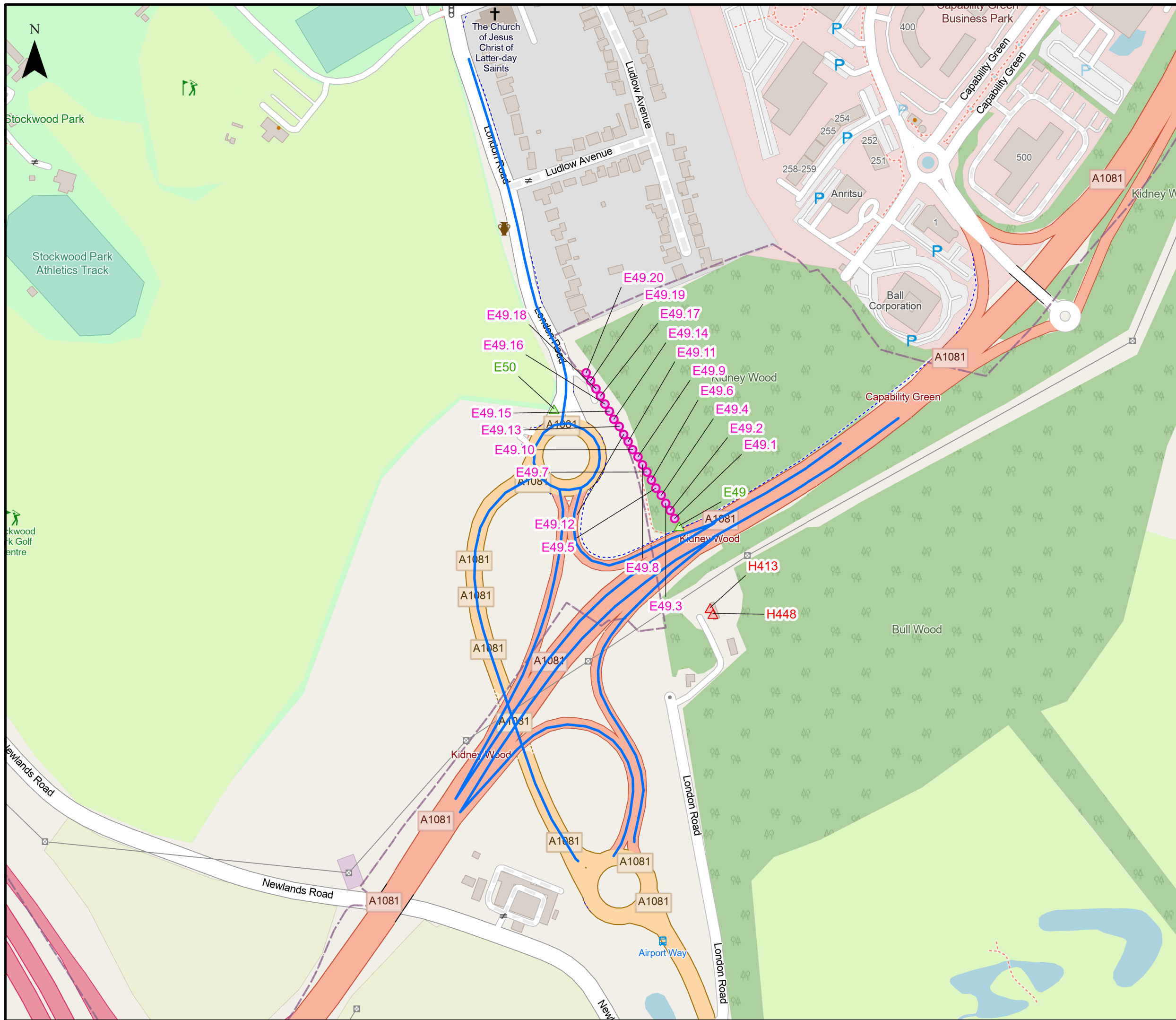
Drawing Title  
**Assessment Phase 2b Do-Minimum (DM)  
 Model Extent  
 Page 2 of 2**

Purpose of issue				Suitability	
Deadline 7 - Additional Submissions				S2	
Drawn	Checked	Approved	Date	Scale	Size
AB	TG	CS	09/01/24	1:4,000	A3

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TR020001	N/A	TR020001/APP/5.03

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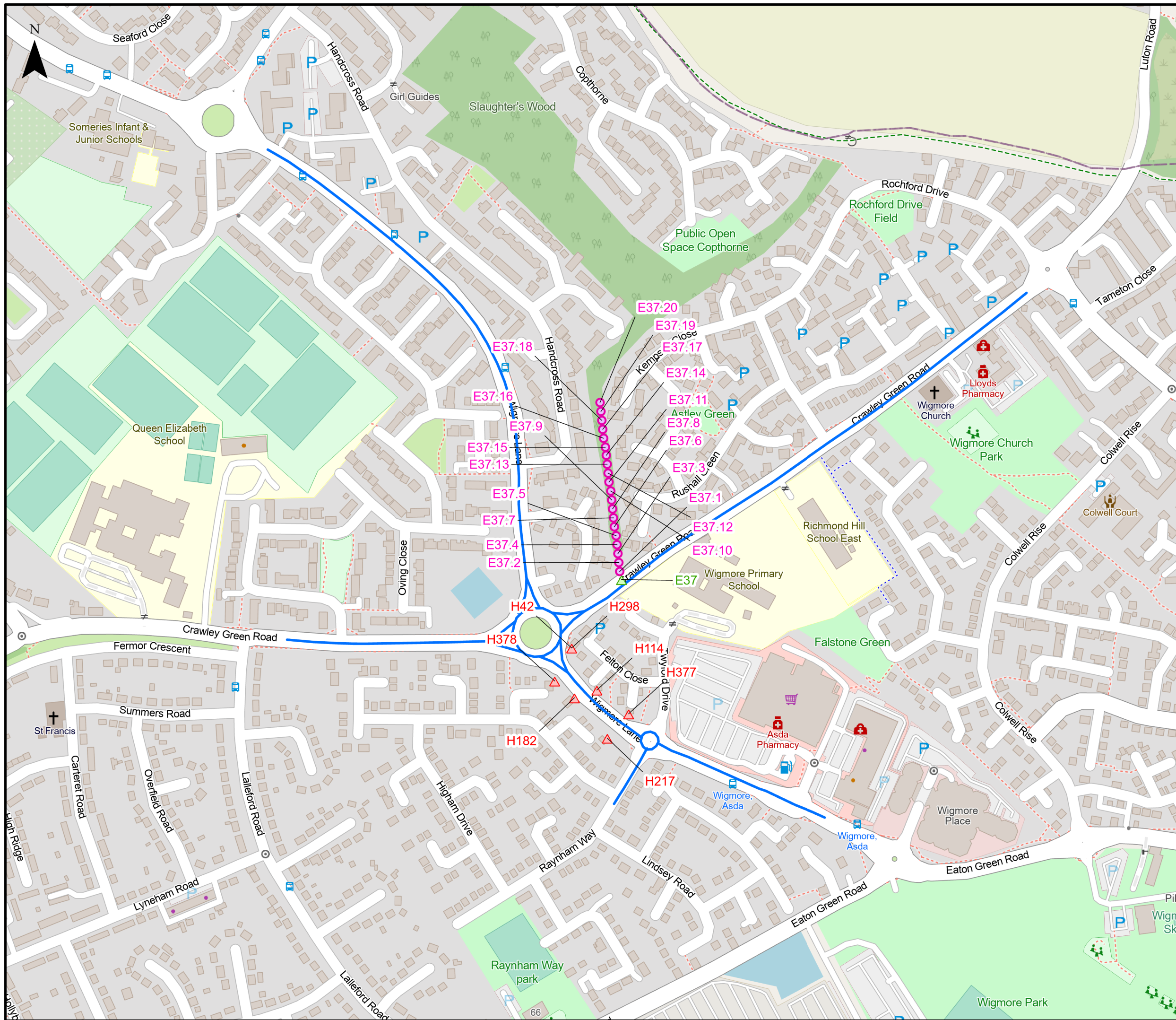


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**Assessment Phase 2b Do-Something (DS) Model Extent**  
 Page 1 of 2

Purpose of issue				Suitability	
Deadline 7 - Additional Submissions				S2	
Drawn	Checked	Approved	Date	Scale	Size
AB	TG	CS	09/01/24	1:4,000	A3
DCO Application Ref.		APFP Regulation	DCO Document Ref.		
TR020001		N/A	TR020001/APP/5.03		
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Drawing Title  
**Assessment Phase 2b Do-Something (DS)  
 Model Extent**  
 Page 2 of 2

Purpose of issue				Suitability	
Deadline 7 - Additional Submissions				S2	
Drawn	Checked	Approved	Date	Scale	Size
AB	TG	CS	09/01/24	1:4,000	A3
DCO Application Ref.	APFP Regulation	DCO Document Ref.			
TR020001	N/A	TR020001/APP/5.03			
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LLADCO-3C-ARP-00-00-DR-YE-0953					P01
Project - Phase - Originator - Asset/Zone - Sub Asset - Type- Discp. - Number					