

Stag Brewery

Briefing Note – Air Quality Actions Following GLA Meeting on 26th September 2019

Date: 3rd October 2019

Client Name: Reselton Properties Ltd

Document Reference: WIE10667-103-BN-15-1-1-GLA_AQ

This document has been prepared and checked in accordance with Waterman Group's IMS (BS EN ISO 9001: 2015, BS EN ISO 14001: 2015 and BS OHSAS 18001:2007)

| Issue | Prepared by | Checked by | Approved by |
|-------|--|--|--|
| | Andy Fowler Senior Consultant | Chris Brownlie Principal Consultant | Ros Boalch Associate Director |
| |  |  |  |

Introduction

- 1.1. Waterman Infrastructure and Environment (WIE) were commissioned by Reselton Properties Ltd (the 'Applicant') to prepare an Environmental Statement (the '2018 ES') for the redevelopment of the former Stag Brewery Site in Mortlake (the 'Site'), which collectively covered three planning applications (refs. 18/0547/FUL ('Application A'), 18/0548/FUL ('Application B') and 18/0549/FUL ('Application C')). Following planning submission in February 2018 for the three applications (the 'Development'), the Greater London Authority's (GLA) internal air quality team reviewed the air quality assessment in the 2018 ES and provided comments on 24th August 2018. WIE provided a response to the GLA's comments in a note dated 6th September 2018. In May 2019, the Applicant issued design amendments to the February 2018 applications, which resulted in the submission of substitution documents and an ES Addendum (the 'May 2019 ES Addendum'). As part of the May 2019 ES Addendum, the air quality assessment was revised to take into account the amendments to the Development and new baseline monitoring data collected between July 2018 and January 2019.
- 1.2. A briefing note was prepared on 30th August 2019 presenting a full response to the GLA's comments (received on 22nd July 2019) to the air quality assessment undertaken for the Development and presented within the 2018 ES and May 2019 ES Addendum.
- 1.3. Following submission of the 30th August 2019 Briefing Note, a meeting with the GLA was held on 26th September 2019 to discuss the conclusions of the air quality assessment. At this meeting the GLA requested further assessment work to be undertaken to demonstrate the Development is acceptable in terms of its impact on local air quality.

- 1.4. This Briefing Note presents details of this further assessment work, specifically demonstrating:
- That considering the most recently available air quality baseline data and with a commitment to provide 20% of the Development's car parking spaces solely for use by electric vehicles (as specified within the Car Parking Management Plan) the overall effect of the Development on local air quality remains insignificant as presented in the 2018 ES and May 2019 ES Addendum.
 - Development Area 1 of the Development would be air quality neutral.
- 1.5. This Briefing Note is accompanied by the following Annexes:
- Annex A: Air Quality Model Verification;
 - Annex B: Air Quality Modelling Results;
 - Annex C: Air Quality Neutral Assessment;
 - Annex D: Updated 2027 'with Development' traffic flows to account for 20% electric vehicle car parking.

The Updated Model

Model Inputs

- 1.6. As agreed with the GLA, further assessment was undertaken using NO_x emissions data obtained from the Air Quality Consultants Ltd Calculator Using Realistic Emissions for Diesels (CURED) spreadsheet¹. This spreadsheet has been designed to provide a reasonable worst-case assumption for future vehicle emissions.
- 1.7. It was agreed that the model would be updated using the latest available information, including;
- 2018 baseline traffic flows provided by Stantec (the Applicant's transport consultant formally known as Peter Brett Associates);
 - Updated 2027 'with Development' traffic flows to account for 20% electric vehicle car parking spaces, provided by Stantec (Annex D);
 - Version 9.0 of the emission Factor Toolkit;
 - 2018 metrological data from London Heathrow Airport;
 - Defra's 2017 based background maps; and
 - Version 7.1 (April 2019) of Defra's NO_x to NO₂ Calculator.
- 1.8. The following input data used within this further assessment remains the same as that presented in the 2018 ES, including:
- Opening year of the Development (2027);
 - Road links; and
 - Sensitive receptors.
- 1.9. As discussed in respect of the Air Quality Neutral Assessment below, the building services plant has been updated to reflect the agreed Energy Strategy.

¹ Air Quality Consultants Ltd (2017) Calculator Using Realistic Emissions for Diesels (CURED) Spreadsheet. CURED V3A December 2017.

Model Verification

- 1.10. Model verification is the process of comparing monitored and modelled pollutant concentrations and, if necessary, adjusting the modelled results to reflect actual measured concentrations, to improve the accuracy of the modelling results.
- 1.11. As part of this Briefing Note, the dispersion model was re-run to predict annual mean NO_x concentrations at the Site specific kerbside and roadside diffusion tube monitoring locations (as originally presented in Table 7 of the May 2019 ES Addendum) to determine the accuracy of the updated 2018 baseline.
- 1.12. As identified in **Annex A**, the updated model is performing well, and no adjustment factor needs to be applied to the modelled results. This is consistent with the process detailed in Appendix 10.2 of Chapter 10: Air Quality of the 2018 ES, whereby no adjustment factor was applied as the model was performing well.

Results

Annual Mean NO₂ Concentrations

- 1.13. The results of the updated assessment using the CURED emissions factors in relation to annual mean NO₂ are presented in **Table 1**.

Table 1: Results of the Assessment using CURED emission factors – Annual Mean

| ID | Receptor Location | 2027 Without Development µg/m ³ | 2027 With Development µg/m ³ | µg/m ³ Change* | Significance |
|----|-------------------------------------|---|--|------------------------------|--------------|
| 1 | 1 Varsity Row | 18.0 | 18.3 | 0.3 | Negligible |
| 2 | 6 Watney Cottages | 21.8 | 22.3 | 0.5 | Negligible |
| 3 | 1 Watney Cottages | 19.9 | 20.4 | 0.5 | Negligible |
| 4 | 1-3 Parliament Mews | 16.6 | 17.1 | 0.4 | Negligible |
| 5 | Ship Lane | 16.5 | 17.2 | 0.7 | Negligible |
| 6 | Lower Richmond Road | 20.6 | 21.2 | 0.6 | Negligible |
| 7 | Lower Richmond Road | 16.5 | 17.0 | 0.5 | Negligible |
| 8 | Lower Richmond Road | 20.3 | 20.9 | 0.6 | Negligible |
| 9 | 13 Sheen Lane | 20.2 | 20.7 | 0.6 | Negligible |
| 10 | 40 Mortlake High Street | 20.8 | 21.3 | 0.5 | Negligible |
| 11 | Boat Race Court | 20.2 | 20.5 | 0.4 | Negligible |
| 12 | Little Paradise Nursery | 20.3 | 21.0 | 0.7 | Negligible |
| 13 | Thomas House Primary School | 19.2 | 19.6 | 0.4 | Negligible |
| 14 | Working Mums Daycare and Pre-School | 19.4 | 19.8 | 0.4 | Negligible |

| ID | Receptor Location | 2027 Without Development µg/m ³ | 2027 With Development µg/m ³ | µg/m ³ Change* | Significance |
|----|---|---|--|---------------------------|--------------|
| 15 | St Mary Magdalen's Catholic Primary School | 17.3 | 17.4 | 0.2 | Negligible |
| 16 | Proposed Residential Building 10 – Ground Floor Level | - | 28.2 | - | - |
| 17 | Proposed School – Ground Floor Level | - | 26.1 | - | - |
| 18 | Proposed Residential Building 3 – Floor Level 5 | - | 27.9 | - | - |
| 19 | Proposed School Building – Floor Level 2 | - | 25.9 | - | - |
| 20 | Chalkers Corner Junction - Receptor 57* | 24.9 | 25.6 | 0.7 | Negligible |
| 21 | Chalkers Corner Junction - Receptor 21* | 28.4 | 26.6 | -1.7 | Negligible |

Note: For accuracy, the changes arising from the Development have been calculated using the exact output from the ADMS-Road and ADMS model rather than the rounded numbers within Table 1. This explains the slight difference in the calculated change in concentrations from the 'without' and 'with' Development scenarios.

* Results presented for the Receptor with the greatest adverse and beneficial change in NO₂, as presented in Annex B

- 1.14. The results in **Table 1** show that the annual mean concentrations of NO₂ are predicted to be below the annual mean NO₂ AQS objective value of 40 µg/m³ 'without' and 'with' the Development at all receptor locations.
- 1.15. **Table 1** presents the impact of the Development using the impact descriptors outlined in Table 10.7 of the 2018 ES. Consequently, the Development is predicted to result in:
- a 'slight beneficial' impact at Receptors 13, 14 and 15; and
 - a 'negligible' impact at the other 14 existing receptors.
- 1.16. As indicated in Chapter 10: Air Quality of the 2018 ES, following the approach to assessing significance outlined in the EPUK / IAQM guidance², the significance of likely residual effects of the completed Development on air quality has been established through professional judgement. Considering the results of this assessment using the CURED emissions factors, the overall effect of the Development on local air quality remains **insignificant** as presented in the 2018 ES and May 2019 ES Addendum.
- 1.17. **Annex B** presents the results for all receptors considered within the air quality assessment, where all receptors are predicted to be below the annual mean NO₂ AQS objective value of 40µg/m³.

1-Hour Mean NO₂ Concentrations

- 1.18. For assessment against the 1-hour short term Predicted Environmental Concentration (PEC) has been compared to the short-term objective level, set at no more than 18 hourly exceedences of 200µg/m³, which corresponds to the 99.8th percentile of 1-hour mean concentrations. The short-

² Environmental Protection UK & Institute of Air Quality Management (2017); 'Land-Use Planning & Development Control: Planning for Air Quality', January 2017. IAQM, London.

term PEC has been calculated as the Process Contribution plus twice the long-term background, as shown in **Table 2**.

Table 2: Results of the Assessment using CURED emission factors – 1-hour mean

| ID | Receptor Location | 2027 Without Development µg/m ³ | 2027 With Development µg/m ³ | µg/m ³ Change* | Significance |
|----|--|---|--|------------------------------|--------------|
| 1 | 1 Varsity Row | 42.4 | 43.3 | 1.0 | Negligible |
| 2 | 6 Watney Cottages | 61.0 | 62.2 | 1.2 | Negligible |
| 3 | 1 Watney Cottages | 52.8 | 53.6 | 0.8 | Negligible |
| 4 | 1-3 Parliament Mews | 37.3 | 40.6 | 3.3 | Negligible |
| 5 | Ship Lane | 36.6 | 44.3 | 7.8 | Negligible |
| 6 | Lower Richmond Road | 53.0 | 58.5 | 5.6 | Negligible |
| 7 | Lower Richmond Road | 36.6 | 47.0 | 10.5 | Negligible |
| 8 | Lower Richmond Road | 52.0 | 56.3 | 4.3 | Negligible |
| 9 | 13 Sheen Lane | 54.4 | 64.4 | 10.0 | Negligible |
| 10 | 40 Mortlake High Street | 54.3 | 62.2 | 7.8 | Negligible |
| 11 | Boat Race Court | 49.9 | 50.6 | 0.7 | Negligible |
| 12 | Little Paradise Nursery | 54.5 | 63.9 | 9.5 | Negligible |
| 13 | Thomas House Primary School | 47.6 | 52.6 | 5.0 | Negligible |
| 14 | Working Mums Daycare and Pre-School | 52.6 | 53.4 | 0.7 | Negligible |
| 15 | St Mary Magdalen's Catholic Primary School | 38.5 | 38.8 | 0.2 | Negligible |
| 16 | Proposed Residential Building 3 – Ground Floor Level | - | 106.5 | - | - |
| 17 | Proposed School – Ground Floor Level | - | 63.7 | - | - |
| 18 | Proposed Residential Building 3 – Floor Level 5 | - | 105.3 | - | - |
| 19 | Proposed School Building – Floor Level 3 | - | 63.8 | - | - |
| 20 | Chalkers Corner Junction - Receptor 7 | 92.2 | 103.3 | 11.0 | Negligible |
| 21 | Chalkers Corner Junction - Receptor 21 | 102.2 | 89.7 | -12.5 | Negligible |

Note: For accuracy, the changes arising from the Development have been calculated using the exact output from the ADMS-Road and ADMS model rather than the rounded numbers within Table 2. This explains the slight difference in the calculated change in concentrations from the 'without' and 'with' Development scenarios.

* Results presented for the Receptor with the greatest adverse and beneficial change in NO₂, as presented in **Annex B**.

- 1.19. The 1-hour mean AQS objective for NO₂ is unlikely to be exceeded at a receptor location where the 99.8th percentile of NO₂ concentrations is less than 200µg/m³. As shown in **Table 2** the 99.8th percentile of NO₂ concentrations in 2027 is predicted to be below 200µg/m³ at all receptor locations. Therefore, the 1-hour mean objective is also predicted to be met at all receptor locations. This is consistent with the conclusions of the 2018 ES and May 2019 ES Addendum which concluded that the 1-hour mean objective was not exceeded.

Air Quality Neutral Assessment

- 1.20. Since submission of the 2018 ES and May 2019 ES Addendum, the Energy Strategy of the Development has been revised and agreed with the GLA.
- 1.21. For the purposes of the Air Quality Neutral Assessment, Development Area 1 (this corresponds to the detailed component of the Development located to the east of Ship Lane, part Application A) would be served by 5 gas fired boilers (a sixth would be in place as a backup boiler) and would not comprise Combined Heat and Power (CHP) units.
- 1.22. **Annex C** presents the calculations undertaken to demonstrate that Development Area 1 of the Development is air quality neutral for building emissions. It should be noted that for the purposes of this assessment this accounts for 5 gas fired boilers that are operational for 50% of the year.
- 1.23. An air quality neutral assessment of the energy strategy for Development Area 2 (the outline component of the Development located to the west of Ship Lane, part of Application A) would be undertaken as part of the subsequent reserved matters applications. It is understood a planning condition would be placed on the Development as a whole to ensure it is air quality neutral.

Conclusion

- 1.24. This Briefing Note presents a full response to the outcomes from the GLA meeting on 26th September. It is intended that the information in this briefing note provides clarification on the GLA comments and assists with their decision that the impact of the Development on local air quality is acceptable.
- 1.25. Clarification is provided in respect of:
- Updated traffic flows accounting for 20% of the Developments parking spaces being allocated for Electric Vehicles only;
 - Updated model inputs;
 - Model verification;
 - Air quality neutral building emissions for Development Area 1 (this corresponds to the detailed component of the Development located to the east of Ship Lane, part Application A).
- 1.26. The information contained within this Briefing Note does not change the conclusions of the 2018 ES, May 2019 ES Addendum or Briefing Note dated 30th August.



Annex A: Air Quality Model Verification

Annex A: Air Quality Model Verification

Introduction

- 1.1.1 Model verification is the process of comparing monitored and modelled pollutant concentrations and, if necessary, adjusting the modelled results to reflect actual measured concentrations, to improve the accuracy of the modelling results.
- 1.1.2 As part of the Briefing Note, the dispersion model was re-run to predict annual mean NO_x concentrations at the project specific kerbside and roadside diffusion tube monitoring locations (as originally presented in Table 7 of the May 2019 ES Addendum) to determine the accuracy of the updated 2018 baseline.
- 1.1.3 The methodology used for the model verification is the same as that presented in Appendix 10.2 of Chapter 10: Air Quality of the 2018 ES.
- 1.1.4 The following roadside and kerbside diffusion tubes were modelled:
- Diffusion Tube 1: Lower Richmond Road;
 - Diffusion Tube 2: Chertsey Court metal railings;
 - Diffusion Tube 2: Chertsey Court, Lower Richmond Road
 - Diffusion Tube 4: Chalkers Corner Junction;
 - Diffusion Tube 6: Clifford Avenue;
 - Diffusion Tube 6: Clifford Avenue;
 - Diffusion Tube 7: Clifford Avenue metal railings;
 - Diffusion Tube 8: Chertsey Court Clifford Avenue;
 - School 1: Stag Brewery Sports Club;
 - School 2: Stag Brewery Sports Club.
- 1.1.5 **Table 1.1** compares the modelled and equivalent measured roadside NO₂ concentrations at the diffusion tube sites.

Table 0.1: Annual Mean NO₂ Modelled and Monitored Concentrations

| Site ID | Monitored Annual Mean NO ₂ (µg/m ³) | Modelled Total Annual Mean NO ₂ (µg/m ³) | % Difference |
|------------------|--|---|--------------|
| Diffusion Tube 1 | 43.0 | 44.9 | 4.3 |
| Diffusion Tube 2 | 36.9 | 39.5 | 6.9 |
| Diffusion Tube 3 | 34.2 | 35.9 | 5.1 |
| Diffusion Tube 4 | 42.7 | 52.7 | 23.3 |
| Diffusion Tube 5 | 40.4 | 40.1 | -0.8 |
| Diffusion Tube 6 | 49.1 | 45.1 | -8.1 |
| Diffusion Tube 7 | 42.1 | 41.5 | -1.4 |
| Diffusion Tube 8 | 32.8 | 36.9 | 12.4 |
| School 1 | 30.2 | 27.5 | -9.1 |
| School 2 | 30.1 | 27.0 | -10.4 |

1.1.6 **Table 1.1** show the model is:

- over predicting at five out of ten sites and under predicting at five of the seven sites;
- the greatest % difference is related to an over-prediction by the model at Diffusion Tube 4, with an over-prediction by 23.3%;
- predictions at sites where the monitored concentrations are above the annual mean objective of $40\mu\text{g}/\text{m}^3$ (Diffusion Tube 1, 4, 5, 6, 7) show good comparison (i.e. they also predict exceedance of $40\mu\text{g}/\text{m}^3$);
- most results are within 10% of monitored concentrations, with Diffusion Tubes 4, 8 and School 2 being within 25%.

1.1.7 LAQM.TG(16) suggests that where there is no systematic over or under prediction at the diffusion tube results and where the majority of modelled results are within 10% of the monitored concentrations that the model verification is appropriate and no further adjustment factor is required.

Conclusion

1.1.8 On re-running the model for the updated 2018 baseline, the model is performing well, and no adjustment factor needs to be applied to the modelled results. This is the same process as detailed in Appendix 10.2 of Chapter 10: Air Quality of the 2018 ES, whereby no adjustment factor was applied as the model was considered to be performing well. Consequently, the results of the detailed dispersion modelling of the air quality assessment as presented in Chapter 10: Air Quality of the 2018 ES remain applicable and valid.



Annex B: Air Quality Modelling Results

Annex B: Air Quality Modelling Results

Annex B presents the results for all receptors considered within the air quality assessment.

| ID | Receptor Name | Annual Mean NO ₂ Concentrations | | | 1-Hour Mean NO ₂ Concentrations | | |
|-----|-------------------------|--|--|---|--|--|---|
| | | 2027 Base | 2027 With Development (with Junction Amendments) | Change: Baseline - With Development (with Junction Amendment) | 2027 Base | 2027 With Development (with Junction Amendments) | Change: Baseline - With Development (with Junction Amendment) |
| J1 | 179 Lower Richmond Road | 29.4 | 29.6 | 0.2 | 101.6 | 102.9 | 1.3 |
| J2 | 179 Lower Richmond Road | 27.8 | 28.0 | 0.2 | 91.5 | 92.1 | 0.6 |
| J3 | 179 Lower Richmond Road | 24.6 | 24.7 | 0.2 | 75.0 | 75.5 | 0.5 |
| J4 | 179 Lower Richmond Road | 21.8 | 21.9 | 0.1 | 60.9 | 64.4 | 3.5 |
| J5 | 189 Lower Richmond Road | 27.3 | 27.5 | 0.2 | 88.4 | 96.7 | 8.3 |
| J6 | 2 South Circular | 29.6 | 30.0 | 0.4 | 103.1 | 108.1 | 5.0 |
| J7 | 2a South Circular | 27.5 | 27.8 | 0.3 | 92.2 | 103.3 | 11.0 |
| J8 | 4 South Circular | 29.7 | 30.2 | 0.5 | 103.2 | 107.6 | 4.5 |
| J9 | 4a South Circular | 27.3 | 27.7 | 0.3 | 91.4 | 101.5 | 10.0 |
| J10 | 6 South Circular | 28.0 | 28.4 | 0.4 | 94.8 | 103.0 | 8.2 |
| J11 | 8 South Circular | 28.0 | 28.5 | 0.5 | 94.4 | 95.9 | 1.4 |
| J12 | 67 Shalstone Road | 28.8 | 29.1 | 0.3 | 93.9 | 103.8 | 9.8 |
| J13 | 1 Lower Richmond Road | 34.2 | 33.5 | -0.8 | 126.2 | 125.1 | -1.1 |
| J14 | 2 Lower Richmond Road | 33.4 | 32.4 | -1.0 | 123.7 | 118.5 | -5.2 |
| J15 | 3 Lower Richmond Road | 31.3 | 30.4 | -0.8 | 111.3 | 107.0 | -4.2 |
| J16 | 4 Lower Richmond Road | 29.8 | 29.0 | -0.8 | 102.5 | 98.8 | -3.6 |
| J17 | 5 Lower Richmond Road | 28.9 | 28.1 | -0.8 | 97.9 | 93.2 | -4.7 |
| J18 | 6 Lower Richmond Road | 28.3 | 27.3 | -1.0 | 95.7 | 88.1 | -7.6 |
| J19 | 7 Lower Richmond Road | 27.8 | 26.6 | -1.2 | 94.2 | 85.0 | -9.2 |
| J20 | 8 Lower Richmond Road | 28.1 | 26.5 | -1.6 | 98.2 | 86.3 | -11.8 |
| J21 | 9 Lower Richmond Road | 28.4 | 26.6 | -1.7 | 102.2 | 89.7 | -12.5 |
| J22 | 10 Lower Richmond Road | 28.8 | 27.2 | -1.7 | 105.7 | 95.3 | -10.4 |
| J23 | 11 Lower Richmond Road | 29.0 | 27.7 | -1.4 | 106.1 | 99.3 | -6.8 |
| J24 | 12 Lower Richmond Road | 29.7 | 28.5 | -1.3 | 109.6 | 104.4 | -5.2 |

| ID | Receptor Name | Annual Mean NO ₂ Concentrations | | | 1-Hour Mean NO ₂ Concentrations | | |
|-----|------------------------|--|--|---|--|--|---|
| | | 2027 Base | 2027 With Development (with Junction Amendments) | Change: Baseline - With Development (with Junction Amendment) | 2027 Base | 2027 With Development (with Junction Amendments) | Change: Baseline - With Development (with Junction Amendment) |
| J25 | 13 Lower Richmond Road | 28.9 | 28.1 | -0.8 | 104.8 | 101.3 | -3.5 |
| J26 | 14 Lower Richmond Road | 29.5 | 28.8 | -0.7 | 107.0 | 105.2 | -1.8 |
| J27 | 15 Lower Richmond Road | 29.3 | 28.8 | -0.5 | 105.3 | 105.1 | -0.2 |
| J28 | 16 Lower Richmond Road | 29.1 | 28.8 | -0.3 | 103.6 | 104.4 | 0.8 |
| J29 | 17 Lower Richmond Road | 28.9 | 28.7 | -0.2 | 102.2 | 103.3 | 1.2 |
| J30 | 18 Lower Richmond Road | 28.6 | 28.5 | -0.1 | 101.1 | 102.2 | 1.1 |
| J31 | 19 Lower Richmond Road | 28.3 | 28.3 | 0.0 | 99.5 | 101.1 | 1.6 |
| J32 | 20 Lower Richmond Road | 28.0 | 28.1 | 0.2 | 98.1 | 100.3 | 2.2 |
| J33 | 21 Lower Richmond Road | 27.5 | 27.8 | 0.3 | 96.9 | 99.6 | 2.7 |
| J34 | 22 Lower Richmond Road | 27.7 | 28.1 | 0.5 | 99.0 | 102.7 | 3.8 |
| J35 | 23 Lower Richmond Road | 26.7 | 27.2 | 0.5 | 95.8 | 100.1 | 4.2 |
| J36 | 24 Lower Richmond Road | 25.6 | 26.0 | 0.5 | 88.2 | 92.2 | 3.9 |
| J37 | 25 Lower Richmond Road | 24.8 | 25.3 | 0.5 | 82.6 | 86.2 | 3.7 |
| J38 | 26 Lower Richmond Road | 24.4 | 24.8 | 0.5 | 79.1 | 82.1 | 3.0 |
| J39 | 27 Lower Richmond Road | 24.0 | 24.4 | 0.5 | 76.6 | 79.3 | 2.7 |
| J40 | 28 Lower Richmond Road | 23.3 | 23.8 | 0.4 | 73.1 | 75.2 | 2.1 |
| J41 | 29 Lower Richmond Road | 23.5 | 23.9 | 0.4 | 72.9 | 75.0 | 2.1 |
| J42 | 30 Lower Richmond Road | 22.9 | 23.3 | 0.4 | 70.1 | 72.1 | 2.1 |
| J43 | 31 Lower Richmond Road | 22.7 | 23.1 | 0.4 | 68.9 | 70.8 | 1.9 |
| J44 | 32 Lower Richmond Road | 22.6 | 23.0 | 0.4 | 67.9 | 69.7 | 1.8 |
| J45 | 33 Lower Richmond Road | 22.7 | 23.2 | 0.4 | 68.2 | 70.0 | 1.7 |
| J46 | 34 Lower Richmond Road | 22.6 | 23.1 | 0.4 | 67.5 | 69.2 | 1.7 |
| J47 | 35 Lower Richmond Road | 22.2 | 22.6 | 0.4 | 65.6 | 67.2 | 1.6 |
| J48 | 36 Lower Richmond Road | 22.4 | 22.8 | 0.4 | 66.1 | 67.7 | 1.6 |
| J49 | 1 Chertsey Court | 21.7 | 22.0 | 0.4 | 62.5 | 63.9 | 1.4 |
| J50 | 2 Chertsey Court | 21.8 | 22.2 | 0.4 | 63.4 | 64.9 | 1.5 |
| J51 | 3 Chertsey Court | 22.2 | 22.5 | 0.4 | 65.7 | 67.4 | 1.7 |

| ID | Receptor Name | Annual Mean NO ₂ Concentrations | | | 1-Hour Mean NO ₂ Concentrations | | |
|-----|-------------------|--|--|---|--|--|---|
| | | 2027 Base | 2027 With Development (with Junction Amendments) | Change: Baseline - With Development (with Junction Amendment) | 2027 Base | 2027 With Development (with Junction Amendments) | Change: Baseline - With Development (with Junction Amendment) |
| J52 | 4 Chertsey Court | 22.6 | 23.0 | 0.4 | 68.1 | 70.0 | 1.9 |
| J53 | 5 Chertsey Court | 23.3 | 23.8 | 0.5 | 70.4 | 72.2 | 1.8 |
| J54 | 6 Chertsey Court | 23.6 | 24.1 | 0.5 | 71.0 | 72.9 | 1.9 |
| J55 | 7 Chertsey Court | 24.1 | 24.7 | 0.6 | 72.4 | 74.6 | 2.2 |
| J56 | 8 Chertsey Court | 24.4 | 25.0 | 0.6 | 73.6 | 76.1 | 2.5 |
| J57 | 9 Chertsey Court | 24.9 | 25.6 | 0.7 | 76.0 | 79.2 | 3.2 |
| J58 | 10 Chertsey Court | 24.3 | 24.9 | 0.7 | 74.2 | 77.6 | 3.4 |
| J59 | 11 Chertsey Court | 24.0 | 24.6 | 0.6 | 73.4 | 76.6 | 3.2 |
| J60 | 12 Chertsey Court | 24.8 | 25.4 | 0.6 | 78.0 | 81.3 | 3.3 |
| J61 | 13 Chertsey Court | 24.9 | 25.4 | 0.5 | 77.5 | 79.6 | 2.2 |
| J62 | 14 Chertsey Court | 24.4 | 24.8 | 0.4 | 74.3 | 75.9 | 1.6 |
| J63 | 15 Chertsey Court | 24.1 | 24.4 | 0.3 | 72.5 | 73.7 | 1.2 |
| J64 | 16 Chertsey Court | 23.8 | 24.1 | 0.3 | 70.9 | 71.9 | 1.0 |
| J65 | 17 Chertsey Court | 23.6 | 23.9 | 0.3 | 69.7 | 70.6 | 0.9 |
| J66 | 18 Chertsey Court | 23.5 | 23.8 | 0.3 | 69.0 | 69.8 | 0.8 |
| J67 | 19 Chertsey Court | 23.4 | 23.6 | 0.2 | 68.0 | 68.8 | 0.8 |
| J68 | 20 Chertsey Court | 23.3 | 23.5 | 0.3 | 67.3 | 68.0 | 0.7 |
| J69 | 21 Chertsey Court | 21.6 | 22.0 | 0.4 | 61.5 | 62.6 | 1.1 |
| J70 | 22 Chertsey Court | 21.4 | 21.8 | 0.4 | 60.2 | 61.1 | 0.9 |
| J71 | 23 Chertsey Court | 21.1 | 21.4 | 0.3 | 58.5 | 59.5 | 1.0 |
| J72 | 1 Chertsey Court | 21.2 | 21.5 | 0.3 | 60.6 | 61.7 | 1.1 |
| J73 | 2 Chertsey Court | 21.4 | 21.7 | 0.3 | 61.3 | 62.4 | 1.2 |
| J74 | 3 Chertsey Court | 21.7 | 22.0 | 0.3 | 63.2 | 64.8 | 1.6 |
| J75 | 4 Chertsey Court | 22.0 | 22.4 | 0.4 | 65.6 | 67.2 | 1.6 |
| J76 | 5 Chertsey Court | 22.7 | 23.1 | 0.4 | 67.5 | 69.1 | 1.7 |
| J77 | 6 Chertsey Court | 23.0 | 23.4 | 0.5 | 68.1 | 69.9 | 1.7 |
| J78 | 7 Chertsey Court | 23.4 | 23.9 | 0.5 | 69.6 | 71.5 | 2.0 |

| ID | Receptor Name | Annual Mean NO ₂ Concentrations | | | 1-Hour Mean NO ₂ Concentrations | | |
|------|-------------------|--|--|---|--|--|---|
| | | 2027 Base | 2027 With Development (with Junction Amendments) | Change: Baseline - With Development (with Junction Amendment) | 2027 Base | 2027 With Development (with Junction Amendments) | Change: Baseline - With Development (with Junction Amendment) |
| J79 | 8 Chertsey Court | 23.7 | 24.2 | 0.5 | 70.8 | 73.0 | 2.2 |
| J80 | 9 Chertsey Court | 24.2 | 24.8 | 0.6 | 73.0 | 75.6 | 2.6 |
| J81 | 10 Chertsey Court | 23.8 | 24.3 | 0.6 | 71.8 | 74.7 | 2.9 |
| J82 | 11 Chertsey Court | 23.6 | 24.1 | 0.5 | 70.9 | 73.8 | 2.9 |
| J83 | 12 Chertsey Court | 24.3 | 24.8 | 0.6 | 74.1 | 77.0 | 2.9 |
| J84 | 13 Chertsey Court | 24.3 | 24.7 | 0.4 | 73.3 | 75.4 | 2.1 |
| J85 | 14 Chertsey Court | 23.8 | 24.2 | 0.3 | 70.9 | 72.3 | 1.4 |
| J86 | 15 Chertsey Court | 23.5 | 23.8 | 0.3 | 69.4 | 70.6 | 1.2 |
| J87 | 16 Chertsey Court | 23.3 | 23.5 | 0.3 | 68.2 | 69.2 | 1.0 |
| J88 | 17 Chertsey Court | 23.1 | 23.3 | 0.3 | 67.2 | 68.1 | 0.9 |
| J89 | 18 Chertsey Court | 23.0 | 23.2 | 0.2 | 66.5 | 67.3 | 0.8 |
| J90 | 19 Chertsey Court | 22.8 | 23.0 | 0.2 | 65.6 | 66.3 | 0.7 |
| J91 | 20 Chertsey Court | 22.8 | 23.0 | 0.2 | 64.9 | 65.6 | 0.7 |
| J92 | 21 Chertsey Court | 21.1 | 21.4 | 0.3 | 59.7 | 60.7 | 1.0 |
| J93 | 22 Chertsey Court | 20.9 | 21.2 | 0.4 | 58.4 | 59.3 | 0.9 |
| J94 | 23 Chertsey Court | 20.6 | 20.9 | 0.3 | 57.1 | 57.9 | 0.8 |
| J95 | 1 Chertsey Court | 20.2 | 20.5 | 0.3 | 56.5 | 57.3 | 0.8 |
| J96 | 2 Chertsey Court | 20.4 | 20.6 | 0.3 | 57.1 | 58.0 | 0.9 |
| J97 | 3 Chertsey Court | 20.6 | 20.9 | 0.3 | 58.4 | 59.4 | 1.0 |
| J98 | 4 Chertsey Court | 20.9 | 21.2 | 0.3 | 59.5 | 60.5 | 1.1 |
| J99 | 5 Chertsey Court | 21.3 | 21.7 | 0.3 | 60.6 | 61.7 | 1.1 |
| J100 | 6 Chertsey Court | 21.5 | 21.8 | 0.3 | 61.0 | 62.2 | 1.2 |
| J101 | 7 Chertsey Court | 21.8 | 22.2 | 0.3 | 62.1 | 63.2 | 1.1 |
| J102 | 8 Chertsey Court | 22.1 | 22.5 | 0.4 | 63.0 | 64.1 | 1.1 |
| J103 | 9 Chertsey Court | 22.5 | 22.9 | 0.4 | 64.3 | 65.8 | 1.5 |
| J104 | 10 Chertsey Court | 22.5 | 22.9 | 0.4 | 64.7 | 66.2 | 1.5 |
| J105 | 11 Chertsey Court | 22.5 | 22.9 | 0.4 | 64.8 | 66.4 | 1.7 |

| ID | Receptor Name | Annual Mean NO ₂ Concentrations | | | 1-Hour Mean NO ₂ Concentrations | | |
|------|-------------------|--|--|---|--|--|---|
| | | 2027 Base | 2027 With Development (with Junction Amendments) | Change: Baseline - With Development (with Junction Amendment) | 2027 Base | 2027 With Development (with Junction Amendments) | Change: Baseline - With Development (with Junction Amendment) |
| J106 | 12 Chertsey Court | 23.0 | 23.4 | 0.4 | 66.2 | 68.3 | 2.1 |
| J107 | 13 Chertsey Court | 22.9 | 23.2 | 0.4 | 64.6 | 66.0 | 1.4 |
| J108 | 14 Chertsey Court | 22.5 | 22.8 | 0.3 | 63.2 | 64.4 | 1.2 |
| J109 | 15 Chertsey Court | 22.2 | 22.5 | 0.3 | 62.5 | 63.5 | 1.0 |
| J110 | 16 Chertsey Court | 22.0 | 22.3 | 0.2 | 61.5 | 62.3 | 0.8 |
| J111 | 17 Chertsey Court | 21.9 | 22.1 | 0.2 | 60.5 | 61.2 | 0.7 |
| J112 | 18 Chertsey Court | 21.8 | 22.0 | 0.2 | 59.6 | 60.2 | 0.6 |
| J113 | 19 Chertsey Court | 21.6 | 21.8 | 0.2 | 58.7 | 59.3 | 0.6 |
| J114 | 20 Chertsey Court | 21.5 | 21.8 | 0.2 | 58.1 | 58.6 | 0.5 |
| J115 | 21 Chertsey Court | 20.1 | 20.3 | 0.3 | 55.4 | 56.2 | 0.8 |
| J116 | 22 Chertsey Court | 19.8 | 20.1 | 0.3 | 54.2 | 54.9 | 0.7 |
| J117 | 23 Chertsey Court | 19.6 | 19.9 | 0.3 | 53.1 | 53.7 | 0.6 |
| J118 | 1 Chertsey Court | 19.3 | 19.5 | 0.2 | 51.7 | 52.4 | 0.7 |
| J119 | 2 Chertsey Court | 19.4 | 19.6 | 0.2 | 52.1 | 52.8 | 0.7 |
| J120 | 3 Chertsey Court | 19.6 | 19.8 | 0.2 | 52.9 | 53.6 | 0.7 |
| J121 | 4 Chertsey Court | 19.8 | 20.0 | 0.2 | 53.5 | 54.2 | 0.8 |
| J122 | 5 Chertsey Court | 20.1 | 20.3 | 0.2 | 54.2 | 55.0 | 0.8 |
| J123 | 6 Chertsey Court | 20.2 | 20.4 | 0.2 | 54.5 | 55.4 | 0.9 |
| J124 | 7 Chertsey Court | 20.4 | 20.6 | 0.2 | 55.2 | 56.0 | 0.8 |
| J125 | 8 Chertsey Court | 20.6 | 20.8 | 0.2 | 55.8 | 56.4 | 0.6 |
| J126 | 9 Chertsey Court | 20.9 | 21.1 | 0.2 | 56.3 | 57.3 | 1.1 |
| J127 | 10 Chertsey Court | 21.1 | 21.3 | 0.2 | 56.8 | 57.8 | 1.0 |
| J128 | 11 Chertsey Court | 21.2 | 21.4 | 0.3 | 56.6 | 57.2 | 0.6 |
| J129 | 12 Chertsey Court | 21.4 | 21.7 | 0.3 | 57.1 | 58.3 | 1.2 |
| J130 | 13 Chertsey Court | 21.3 | 21.5 | 0.3 | 55.9 | 56.6 | 0.7 |
| J131 | 14 Chertsey Court | 21.0 | 21.2 | 0.2 | 54.9 | 55.5 | 0.6 |
| J132 | 15 Chertsey Court | 20.9 | 21.1 | 0.2 | 54.1 | 54.8 | 0.7 |

| ID | Receptor Name | Annual Mean NO ₂ Concentrations | | | 1-Hour Mean NO ₂ Concentrations | | |
|------|-------------------|--|--|---|--|--|---|
| | | 2027 Base | 2027 With Development (with Junction Amendments) | Change: Baseline - With Development (with Junction Amendment) | 2027 Base | 2027 With Development (with Junction Amendments) | Change: Baseline - With Development (with Junction Amendment) |
| J133 | 16 Chertsey Court | 20.7 | 20.9 | 0.2 | 53.3 | 53.8 | 0.5 |
| J134 | 17 Chertsey Court | 20.6 | 20.8 | 0.2 | 52.7 | 53.2 | 0.5 |
| J135 | 18 Chertsey Court | 20.5 | 20.7 | 0.2 | 51.9 | 52.3 | 0.4 |
| J136 | 19 Chertsey Court | 20.4 | 20.6 | 0.2 | 51.3 | 51.7 | 0.4 |
| J137 | 20 Chertsey Court | 20.3 | 20.5 | 0.2 | 50.6 | 51.0 | 0.4 |
| J138 | 21 Chertsey Court | 19.2 | 19.4 | 0.2 | 51.1 | 51.7 | 0.6 |
| J139 | 22 Chertsey Court | 19.0 | 19.2 | 0.2 | 50.1 | 50.6 | 0.5 |
| J140 | 23 Chertsey Court | 18.8 | 19.0 | 0.2 | 49.4 | 49.8 | 0.4 |

Note: For accuracy, the changes have been calculated using the exact output from the ADMS-Roads model rather than the rounded numbers within Table A1. This explains where there may a slight difference in the calculated change in concentrations between the different scenarios

Table A2: Predicted Annual Mean NO₂ Concentrations (µg/m³) for Floors Levels within the Development

| Floor | Building | | | | | | | | | | | | | | | | | | | | School | Playing field | |
|-------|----------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--------|---------------|------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | | | 21 |
| G | 27.5 | 28.2 | 28.2 | 25.5 | 31.4 | 27.6 | 25.7 | 25.6 | 27.7 | 28.2 | 25.4 | 25.6 | - | 26.8 | 25.8 | 25.9 | 27.4 | 25.6 | 25.2 | 25.2 | 37.6 | 26.1 | 26.1 |
| 1 | 26.8 | 28.2 | 28.2 | 25.5 | 29.3 | 27.0 | 25.7 | 25.5 | 26.8 | 27.2 | 25.3 | 25.5 | 25.8 | 26.5 | 25.8 | 25.8 | 27.3 | 25.5 | 25.2 | 25.2 | 25.7 | 25.9 | - |
| 2 | 25.9 | 28.1 | 28.1 | 25.5 | 26.5 | 26.0 | 25.6 | 25.4 | 25.6 | 25.8 | 25.2 | 25.3 | 25.6 | 25.9 | 25.8 | 25.8 | 27.2 | 25.5 | 25.2 | 25.2 | 25.6 | 25.7 | - |
| 3 | 25.6 | 28.0 | 28.0 | 25.5 | - | 25.4 | 25.4 | 25.2 | 25.0 | 25.2 | 25.1 | 25.0 | 25.5 | 25.5 | 25.7 | 25.8 | 27.2 | 25.5 | 25.1 | 25.1 | 25.6 | - | - |
| 4 | - | 28.0 | 28.0 | 25.5 | - | - | 25.3 | 25.1 | 24.8 | 24.9 | 24.9 | 24.9 | 25.3 | 25.3 | 25.7 | 25.8 | 27.1 | 25.5 | - | - | - | - | - |
| 5 | - | 27.9 | 27.9 | 25.5 | - | - | 25.2 | 25.0 | - | - | 24.9 | 24.8 | 25.2 | 25.2 | 25.7 | 25.7 | 27.0 | 25.5 | - | - | - | - | - |
| 6 | - | 27.8 | - | 25.5 | - | - | 25.1 | 24.9 | - | - | 24.8 | 24.7 | - | - | 25.7 | - | 27.0 | 25.6 | - | - | - | - | - |
| 7 | - | 26.7 | - | 25.5 | - | - | 25.1 | 24.9 | - | - | - | - | - | - | - | - | 26.9 | - | - | - | - | - | - |
| 8 | - | - | - | 25.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 9 | - | - | - | 25.4 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Table A3: Predicted 1-Hour Mean NO₂ Concentrations (µg/m³) for Floors Levels within the Development

| Floor | Building | | | | | | | | | | | | | | | | | | | | | School | Playing field |
|-------|----------|------|-------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|--------|---------------|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | | |
| G | 69.5 | 88.3 | 106.5 | 78.0 | 68.8 | 59.3 | 59.3 | 56.9 | 53.7 | 57.2 | 48.4 | 45.9 | - | 59.9 | 61.6 | 62.4 | 89.1 | 57.9 | 44.5 | 40.5 | 53.0 | 63.7 | 48.5 |
| 1 | 69.1 | 88.2 | 106.4 | 78.0 | 60.6 | 56.5 | 56.5 | 48.3 | 50.4 | 52.8 | 48.8 | 45.9 | 59.6 | 58.7 | 61.6 | 62.5 | 88.4 | 58.1 | 44.6 | 40.3 | 53.0 | 63.7 | |
| 2 | 68.0 | 88.0 | 106.0 | 77.9 | 50.7 | 52.1 | 55.8 | 47.5 | 45.7 | 48.3 | 49.9 | 46.2 | 58.6 | 56.7 | 62.0 | 62.5 | 87.9 | 58.6 | 44.8 | 40.3 | 52.9 | 63.8 | |
| 3 | 67.0 | 87.9 | 105.7 | 77.8 | | 50.0 | 55.5 | 47.6 | 43.5 | 48.1 | 50.9 | 47.7 | 58.3 | 56.9 | 62.5 | 63.0 | 87.8 | 58.9 | 44.8 | 40.4 | 52.6 | | |
| 4 | | 87.6 | 105.5 | 78.1 | | | 55.3 | 54.2 | 42.5 | 49.4 | 53.7 | 48.6 | 58.1 | 57.4 | 65.4 | 65.7 | 87.6 | 59.7 | | | | | |
| 5 | | 87.2 | 105.3 | 78.1 | | | 55.2 | 58.6 | | | 56.0 | 49.4 | 60.1 | 58.8 | 68.1 | 68.2 | 87.3 | 62.8 | | | | | |
| 6 | | 86.7 | | 78.1 | | | 55.5 | 62.7 | | | 57.3 | 50.2 | | | 70.6 | | 87.0 | 64.7 | | | | | |
| 7 | | 84.5 | | 77.7 | | | 55.9 | 66.5 | | | | | | | | | 87.9 | | | | | | |
| 8 | | | | 78.5 | | | | | | | | | | | | | | | | | | | |
| 9 | | | | 79.3 | | | | | | | | | | | | | | | | | | | |



Annex C: Air Quality Neutral Assessment

Annex C: Development Area 1 Air Quality Neutral Assessment

Introduction

- 1.1.1 This Annex presents the calculations undertaken by Waterman Infrastructure and Environment (WIE) to demonstrate how Development Area 1 of the Development performs against the buildings 'air quality neutral' benchmark.

Description of the Development

- 1.1.2 The Development is located within the Outer London Activity Zone and would provide a mixed-use scheme (see **Table 1**).
- 1.1.3 The total amount of floorspace proposed by the Development, relevant to the Air Quality Neutral Assessment criteria is set out below in **Table 1**.

Table 1: Development Area 1 Proposed floorspace Areas

| Land Use (Use Class) | Proposed Floorspace Areas (GIA) (m ²) |
|---|---|
| Residential (Use Class C3) | 50,075 |
| Office (Use Class B1) | 2,424 |
| Hotel (Use Class C1) | 1,673 |
| Cinema (Use Class D2) | 2,120 |
| Gym (Use Class D2) | 760 |
| Flexible Uses - Restaurant / bar / retail / community / leisure (Use Classes A1 / A2 / A3 / A4 / B1 / D1 / Boathouse) | 4,685 |
| Total | 61,737 |

Note: Table 1 is not the Total Floor Space provided within the Development and excludes non-habitable uses such as plant and storage areas, play space, private amenity space, car park space, which are not used within the Air Quality Neutral Assessment calculations.

The AQNA assessment requires the comparison of Development against relevant benchmarks for each use class and therefore it is necessary for them to be included in Table 1.

Planning Policy

The London Plan: The Spatial Development Strategy for Greater London; Consolidated with Alterations since 2011, 2016

- 1.1.4 Policy 7.14 'Improving air quality' of the London Plan¹ states that development proposals should:
- "...be at least 'air quality neutral' and not lead to further deterioration of existing poor air quality (such as areas designated as AQMAs);..."*

The Draft New London Plan: The Spatial Development Strategy for Greater London, Consolidated Suggested Changes Version July 2019

- 1.1.5 Policy SI1 'Improving Air Quality' of the Draft New London Plan² states that development proposals should not:

"a) lead to further deterioration of existing poor air quality"

¹ Greater London Authority (2016): The 2015 London Plan with Minor Alterations 2016, Spatial Development Strategy for Greater London, GLA, London.

² Greater London Authority (2019): Draft New London Plan, Spatial Development Strategy for Greater London, GLA, London.

b) create any new areas that exceed air quality limits, or delay the date at which compliance will be achieved in areas that are currently in exceedance of legal limits

c) create unacceptable risk of high levels of exposure to poor air quality.”

- 1.1.6 Policy SI1 also states that “Development proposals should ensure that where emissions need to be reduced to meet the requirements of Air Quality Neutral or to make the impact of development on local air quality acceptable, this is done on-site. Where it can be demonstrated that emissions cannot be further reduced by on-site measures, off-site measures to improve local air quality may be acceptable, provided that equivalent air quality benefits can be demonstrated within the area affected by the development”.

The Mayor’s Air Quality Strategy ‘Clearing the Air’, 2010

- 1.1.7 Similarly, the Mayor’s Air Quality Strategy³ states that:

“New developments in London shall as a minimum be ‘air quality neutral’ through the adoption of best practice in the management and mitigation of emissions”.

Sustainable Design and Construction - Supplementary Planning Guidance, 2014

- 1.1.8 The Sustainable Design and Guidance – Supplementary Planning Guidance (SPG) provides updated guidance to support the implementation of the London Plan.
- 1.1.9 Further to Policy 7.14 of the London Plan, Section 4.3 of the SPG focusses on air pollution and the effects from the operation of new developments within Greater London. The SPG requires all new developments to be at least ‘air quality neutral’.
- 1.1.10 Paragraph 4.3.15 of the SPG states:
- “This policy applies to all major developments in Greater London. Developers will have to calculate the NO_x and / or PM₁₀ emissions from the buildings and transport elements of their developments and compare them to the benchmarks set out in Appendix 5 and 6.”*
- 1.1.11 The SPG presents emission benchmarks for buildings (associated with emissions from combustion plant introduced as part of a development to provide heating and power) and transport (associated with vehicle trips related to the operation of the development). It is considered that where a development does not exceed these benchmarks, it would be ‘air quality neutral’ and would not increase NO_x (oxides of nitrogen) and PM₁₀ (particulate matter of 10µm diameter or less) emissions across London as a whole. A discussion on the Building Emission Benchmarks (BEBs) as set out within the SPG is presented below.

Air Quality Neutral Planning Support: GLA 80371, April 2014

- 1.1.12 In April 2014, the GLA published the Air Quality Neutral Planning Support (AQNPS): GLA 80371⁴ to provide support to the development of the Mayor’s policy related to ‘air quality neutral’ developments. The report provides a method to enable a development to be assessed against the air quality neutral benchmarks set out in the Sustainable Design and Construction SPG.
- 1.1.13 The report provides a methodology required to apply the air quality neutral policy. It requires the transport and building emissions for the development to be identified and then compared to the

³ Greater London Authority (GLA), ‘The Mayor’s Air Quality Strategy: Cleaning London’s Air’, London, 2002.

⁴ Air Quality Consultants Environ Air Quality Neutral Planning Support: GLA 80371. April 2014

benchmark emissions. The report notes that the building and transport emissions should be calculated separately and not combined.

Building Emissions Benchmarks (BEBs)

- 1.1.14 Paragraph 4.3.17 and Appendix 5 of the SPG note that Building Emission Benchmarks (BEBs) have been defined for a series of land-use classes for both NO_x and PM₁₀. The Land Use Classes are presented in **Table 2**.

Table 2: 'Air Quality Neutral' Emissions Benchmarks for Buildings

| Land Use Class | NO _x (g/m ²) | PM ₁₀ (g/m ²) |
|-----------------------|-------------------------------------|--------------------------------------|
| Class A1 | 22.6 | 1.29 |
| Class A3 - A5 | 75.2 | 4.32 |
| Class A2 and Class B1 | 30.8 | 1.77 |
| Class B2 – B7 | 36.6 | 2.95 |
| Class B8 | 23.6 | 1.90 |
| Class C1 | 70.9 | 4.07 |
| Class C2 | 68.5 | 5.97 |
| Class C3 | 26.2 | 2.28 |
| Class D1(a) | 43.0 | 2.47 |
| Class D1(b) | 75.0 | 4.30 |
| Class D1(c-h) | 31.0 | 1.78 |
| Class D2(a-d) | 90.3 | 5.18 |
| Class D2(e) | 284 | 16.3 |

Note: For Flexible Use an average benchmark of A1, A2, A3, A4, B1 & D1 was used

- 1.1.15 It is noted that whilst the BEBs have been provided for PM₁₀, these only apply for developments which would introduce heating plants likely to produce significant PM₁₀ emissions. This would typically include heating plant operated by oil or solid fuel (including all biomass appliances). All other plant would not result in an increase in PM₁₀; therefore, an assessment against the PM₁₀ BEBs would not be required.

Calculation of the Development Area 1 Building Emissions Benchmarks

- 1.1.16 Development Area 1 of the Development would provide six ultra-low NO_x Ultragas 2300D boilers. The sixth boiler would be provided as a back-up and would only be used if there was a failure to one of the other five boilers.
- 1.1.17 The details of the boilers are presented in **Table 3**.

Table 3: Calculation of the Total Building Emissions for Development Area 1

| Unit | Number | Total NO _x Emissions (g/s) | Hours of Operation (hrs./annum) | Total NO _x (kg/annum) |
|---|--------|---------------------------------------|---------------------------------|----------------------------------|
| Boiler (2300kW) | 5 | 0.12 | 4,380 | 1,914.1 |
| Total Building NO_x Emission | | | | 1,914.1 |

Note: For gas-fired plants PM₁₀ emission factors are not provided because gas-fired plants do not emit any significant level of particulates

A sixth boiler would be provided as a back-up but would only be used if there was a failure to one of the other 5 boilers.

1.1.18 The BEB for each land use category are presented in **Table 4**. These are calculated by multiplying the floor area for each land use category with the Building Emission Benchmark presented in **Table 2**.

Table 4: Calculation of the Benchmarked NO_x Building Emissions for each Land-Use Category

| Land Use | GIA (m ²) | Building Emissions Benchmark (gNO _x /m ² /annum) | Benchmarked Emissions (kgNO _x /annum) |
|--|-----------------------|--|--|
| Residential (Use Class C3) | 50,075 | 26.2 | 1,312.0 |
| Office (Use Class B1) | 2,424 | 30.8 | 74.7 |
| Hotel (Use Class C1) | 1,673 | 70.9 | 118.6 |
| Cinema (Use Class D2) | 2,120 | 90.3 | 191.4 |
| Gym (Use Class D2) | 760 | 284 | 215.8 |
| Flexible Uses - Restaurant / bar / retail / community / leisure (Use Classes A1 / A2 / A3 / A4 / B1 / D1 / Boathouse)* | 4,685 | 44.27 | 207.4 |
| Total Benchmarked Building Emissions | | | 2,119.9 |

Note: * Flexible Uses - an average benchmark of A1, A2, A3, A4, B1 & D1 was used

1.1.19 As shown in **Table 3**, the Total Building NO_x Emission of 1,914.1kg/annum are below the benchmarks of 2119.9kg/annum calculated in **Table 4**. The Development is therefore considered to be 'Air Quality Neutral', with respect to building emissions and no further mitigation measures are required.



Annex D: Updated 2027 'with Development' Traffic Flows

Annex D: Traffic Data

Annex D presents the updated 2027 'with Development' traffic flows used within the air quality assessment, provided by Stantec.

| Receptor Name | Speed (kph) | Direction | Base 2018 | | Without 2027 | | With 2027 | |
|--|-------------|-----------|-----------|-------|--------------|-------|-----------|-------|
| | | | AADT | %HDV | AADT | %HDV | AADT | %HDV |
| A316 Clifford Ave | 65 | NB | 16237 | 10.99 | 17786 | 10.99 | 17933 | 10.94 |
| A316 Lower Richmond Road | 64 | SB | 14213 | 9.51 | 15569 | 9.51 | 15850 | 9.42 |
| A316 Lower Richmond Road | 48 | WB | 17903 | 5.22 | 19611 | 5.22 | 19873 | 5.22 |
| South Circular (north of A316) | 48 | EB | 19651 | 5.68 | 21526 | 5.68 | 21772 | 5.67 |
| South Circular (north of A316) | 48 | NB | 7950 | 6.10 | 8708 | 6.10 | 8791 | 6.09 |
| South Circular (south of A316) | 48 | SB | 7243 | 5.60 | 7933 | 5.60 | 8056 | 5.59 |
| South Circular (south of A316) | 48 | NB | 11320 | 3.91 | 12400 | 3.91 | 12400 | 3.91 |
| A3003 Lower Richmond Road (Watney's Sports Ground) | 48 | SB | 10313 | 3.60 | 11297 | 3.60 | 11379 | 3.61 |
| A3003 Lower Richmond Road (Watney's Sports Ground) | 44 | WB | 8341 | 8.57 | 9053 | 8.57 | 9628 | 8.36 |
| A3003 Lower Richmond Road (Mortlake Green) | 48 | EB | 8943 | 8.89 | 9706 | 8.89 | 10356 | 8.63 |
| A3003 Lower Richmond Road (Mortlake Green) | 39 | WB | 8334 | 8.34 | 9045 | 8.34 | 9660 | 8.12 |
| Williams Lane | 45 | EB | 9111 | 11.19 | 9889 | 11.19 | 10533 | 10.81 |
| Williams Lane | 41 | NB | 279 | 6.71 | 302 | 6.71 | 625 | 5.73 |
| Mortlake High Street | 42 | SB | 343 | 7.43 | 372 | 7.43 | 658 | 6.37 |
| Mortlake High Street | 51 | WB | 8722 | 13.39 | 9466 | 13.39 | 9888 | 13.03 |
| The Terrace (west of Barnes Bridge Station) | 33 | EB | 9697 | 8.48 | 10524 | 8.48 | 10971 | 8.34 |
| The Terrace (west of Barnes Bridge Station) | 46 | WB | 8461 | 8.66 | 9184 | 8.66 | 9517 | 8.53 |

| Receptor Name | Speed (kph) | Direction | Base 2018 | | Without 2027 | | With 2027 | |
|--|-------------|-----------|-----------|-------|--------------|-------|-----------|-------|
| | | | AADT | %HDV | AADT | %HDV | AADT | %HDV |
| White Hart Lane (south of Mortlake High Street) | 47 | EB | 9111 | 8.69 | 9888 | 8.69 | 10303 | 8.54 |
| White Hart Lane (south of Mortlake High Street) | 39 | NB | 2212 | 8.27 | 2401 | 8.27 | 2489 | 8.15 |
| Sheen Lane (north of Level Crossing) | 41 | SB | 2711 | 7.53 | 2942 | 7.53 | 2974 | 7.50 |
| Sheen Lane (north of Level Crossing) | 48 | NB | 3169 | 4.38 | 3440 | 4.38 | 3633 | 4.40 |
| Sheen Lane (south of Level Crossing) | 48 | SB | 2784 | 2.54 | 3022 | 2.54 | 3220 | 2.69 |
| Sheen Lane (south of Level Crossing) | 48 | NB | 3055 | 1.99 | 3343 | 1.99 | 3536 | 2.15 |
| Sheen Lane (south of South Circular) | 48 | SB | 2627 | 2.98 | 2875 | 2.98 | 3073 | 3.11 |
| Sheen Lane (south of South Circular) | 33 | NB | 2358 | 3.32 | 2580 | 3.32 | 2703 | 3.39 |
| South Circular Road (west of Sheen Lane) | 34 | SB | 2566 | 5.07 | 2808 | 5.07 | 2923 | 5.07 |
| South Circular Road (west of Sheen Lane) | 43 | WB | 9387 | 8.74 | 10272 | 8.74 | 10272 | 8.74 |
| 16 Lower Richmond Road | 44 | EB | 9066 | 8.09 | 9920 | 8.09 | 9920 | 8.09 |
| A316 Clifford Ave | 64 | Two way | 30451 | 10.25 | 33355 | 10.25 | 33783 | 10.18 |
| A316 Lower Richmond Road | 48 | Two way | 37555 | 5.45 | 41137 | 5.45 | 41645 | 5.44 |
| South Circular (north of A316) | 48 | Two way | 15192 | 5.85 | 16641 | 5.85 | 16847 | 5.84 |
| South Circular (south of A316) | 48 | Two way | 21633 | 3.75 | 23696 | 3.75 | 23779 | 3.76 |
| A3003 Lower Richmond Road (Watney's Sports Ground) | 46 | Two way | 17284 | 8.73 | 18759 | 8.73 | 19984 | 8.49 |
| A3003 Lower Richmond Road (Mortlake Green) | 42 | Two way | 17445 | 9.77 | 18934 | 9.77 | 20193 | 9.47 |
| Williams Lane | 41 | Two way | 621 | 7.07 | 674 | 7.07 | 1283 | 6.05 |
| Mortlake High Street | 42 | Two way | 18418 | 10.94 | 19991 | 10.94 | 20859 | 10.68 |

| Receptor Name | Speed (kph) | Direction | Base 2018 | | Without 2027 | | With 2027 | |
|---|-------------|-----------|-----------|------|--------------|------|-----------|------|
| | | | AADT | %HDV | AADT | %HDV | AADT | %HDV |
| The Terrace (west of Barnes Bridge Station) | 47 | Two way | 17572 | 8.68 | 19072 | 8.68 | 19820 | 8.54 |
| White Hart Lane (south of Mortlake High Street) | 40 | Two way | 4923 | 7.90 | 5343 | 7.90 | 5463 | 7.82 |
| Sheen Lane (north of Level Crossing) | 48 | Two way | 5954 | 3.46 | 6462 | 3.46 | 6853 | 3.54 |
| Sheen Lane (south of Level Crossing) | 48 | Two way | 5682 | 2.48 | 6217 | 2.48 | 6608 | 2.63 |
| Sheen Lane (south of South Circular) | 34 | Two way | 4924 | 4.19 | 5388 | 4.19 | 5625 | 4.23 |
| South Circular Road (west of Sheen Lane) | 43 | Two way | 18453 | 8.42 | 20192 | 8.42 | 20192 | 8.42 |