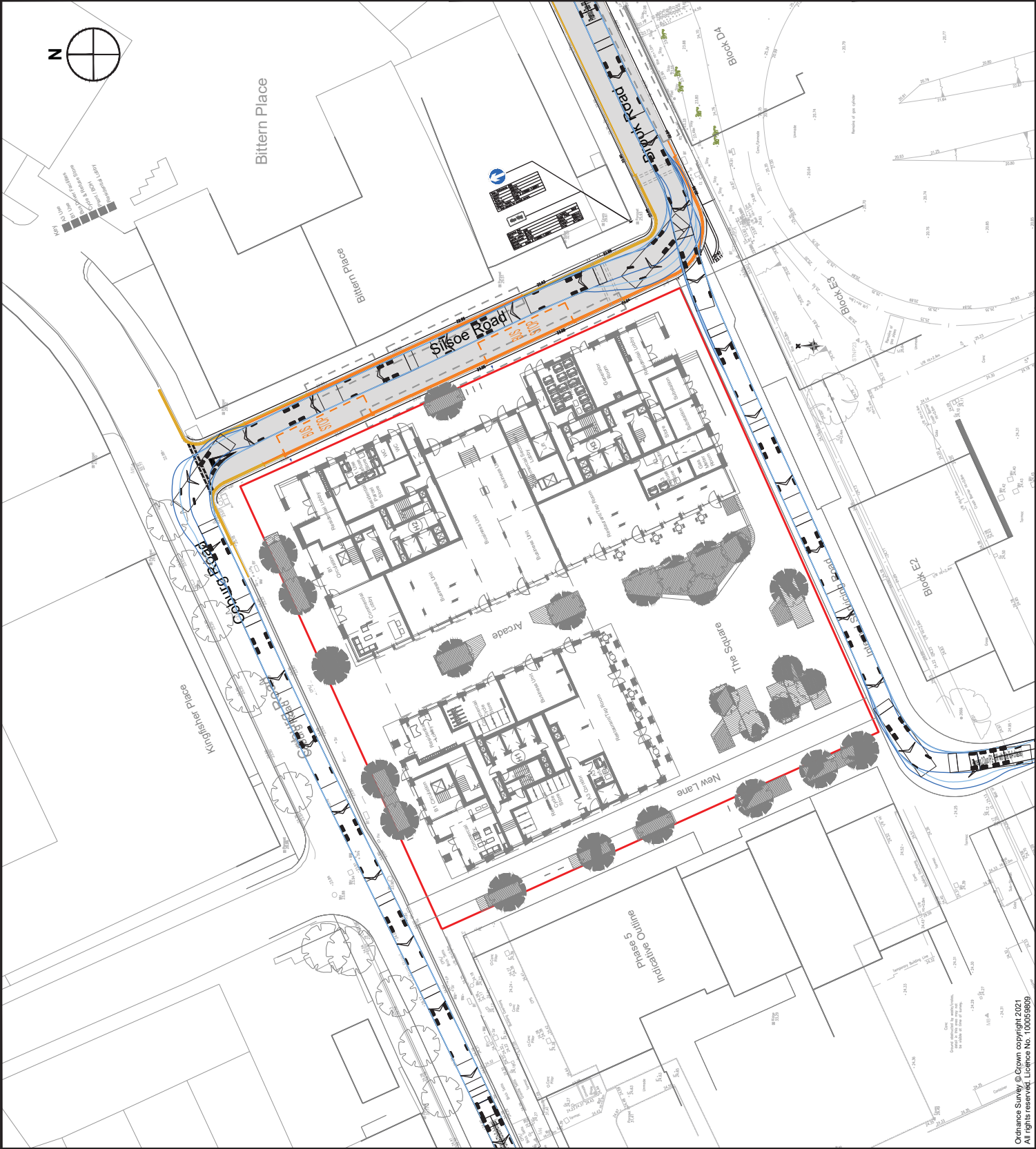
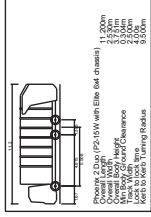




Notes:

- 1. This is not a construction drawing and is intended for illustrative purposes only.
- 2. While timing is indicative only.
- 3. Based on Sheppard Robson layout: 6726-SRA-ZZ00-ORA-02102
- 4. Based on Valen SZ78 layout: W250-MAL-SH400-OR-C-95-0366_F1



REV	DETAILS	DRAWN	CHECKED	DATE
-	-	-	-	-

DISCUSSION

CLIENT: St William

PROJECT: Clarendon Phase 4

DRAWING TITLE: Swept Path Analysis
Refuse Vehicle

SCALES: 1:500 at A3

DRAWN: MZ
CHECKED: GS
DATE: 31.08.2023

***SLR**

DRAWING NUMBER: 130935G_PD04_AT03
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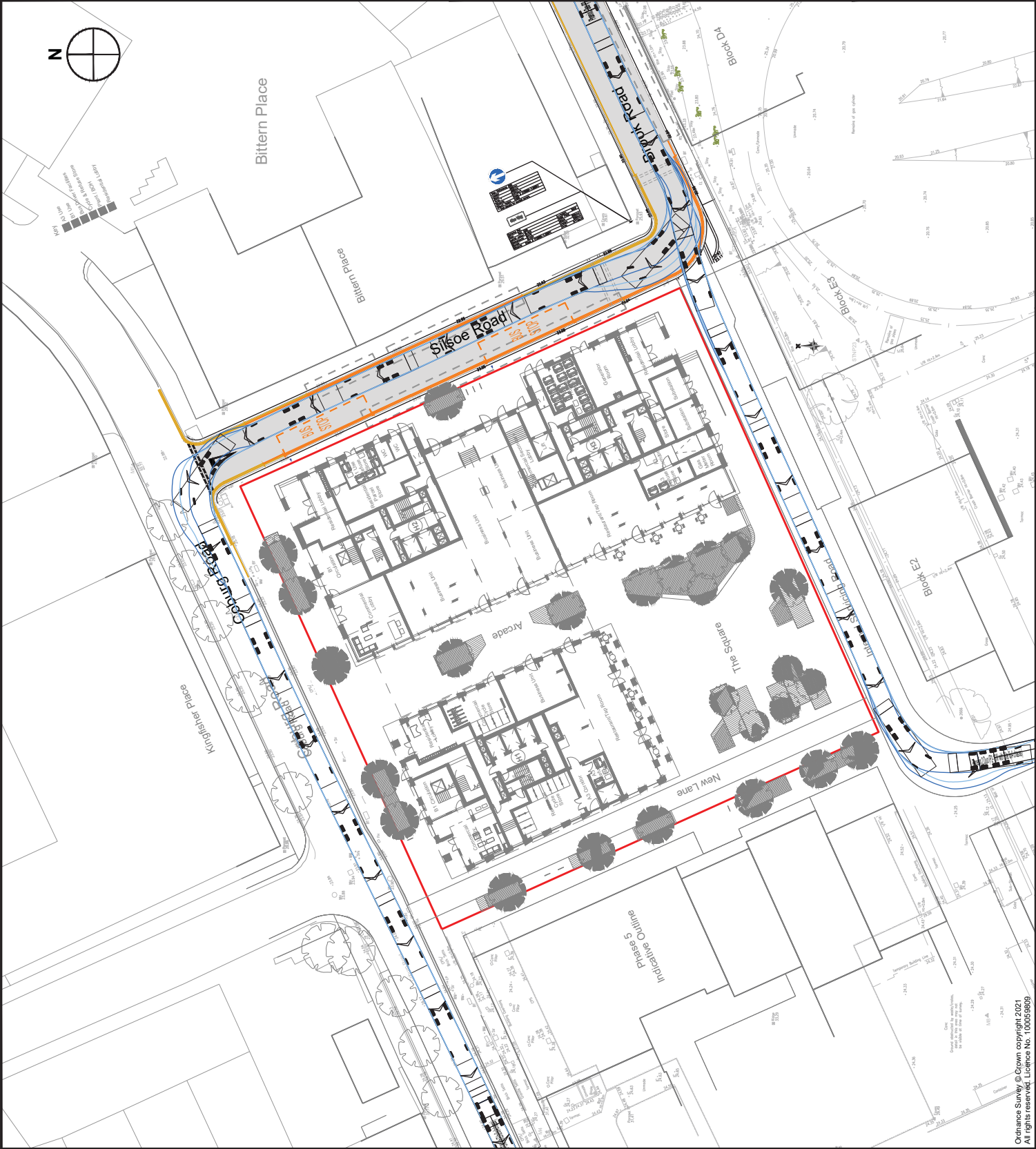
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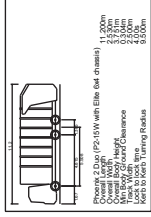
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Appendix G



Notes:

- 1. This is not a construction drawing and is intended for illustrative purposes only.
- 2. While timing is indicative only.
- 3. Based on Sheppard Robson layout: 6726-SRA-ZZ00-ORA-02102
- 4. Based on Valen SZ78 layout: W250-MAL-SH400-OR-C-950366_F1



REV	DETAILS	DRAWN	CHECKED	DATE
-	-	-	-	-

DISCUSSION

CLIENT: St William

PROJECT: Clarendon Phase 4

DRAWING TITLE: Swept Path Analysis
Refuse Vehicle

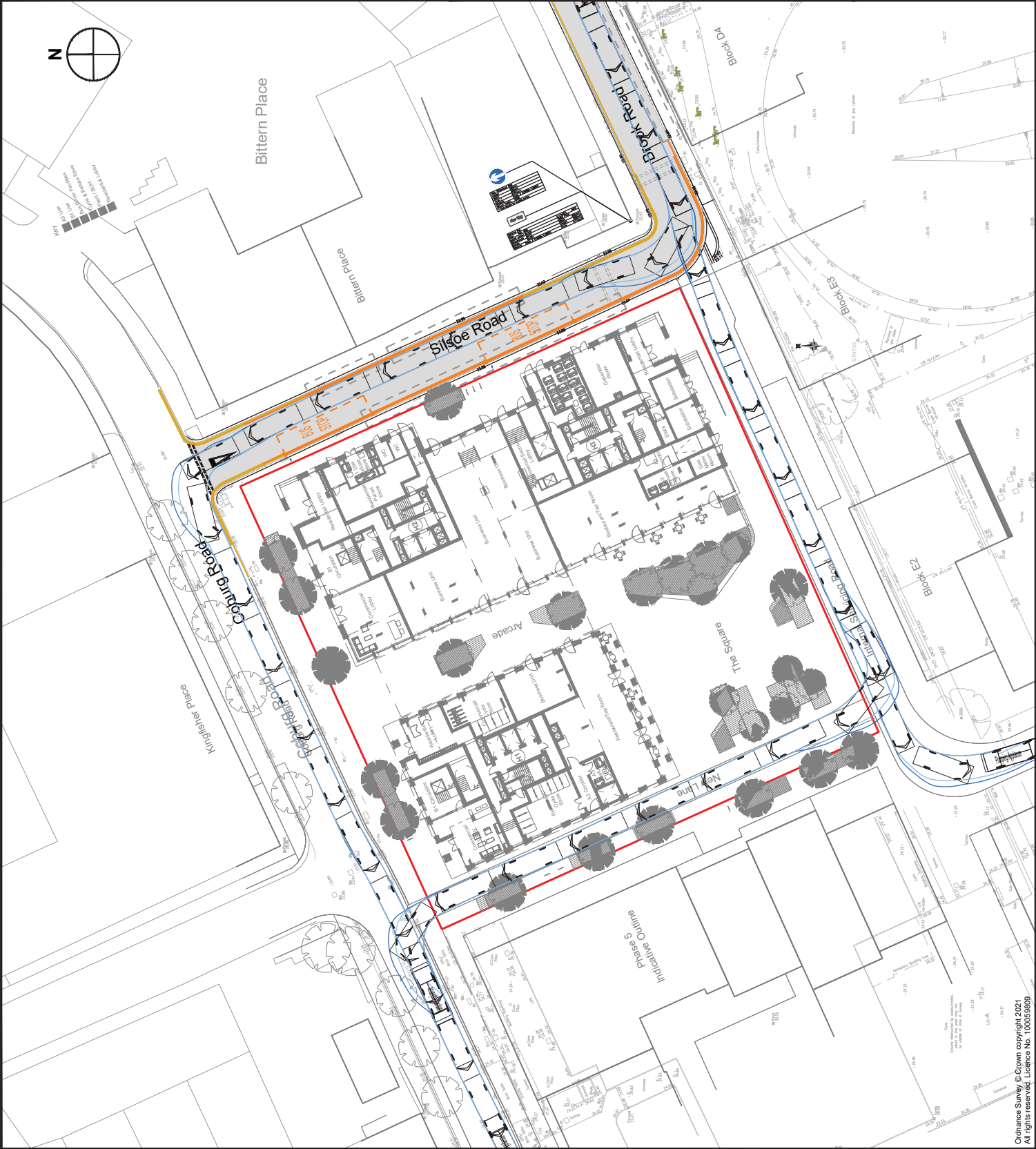
SCALES: 1:500 at A3

DRAWN: MZ
CHECKED: GS
DATE: 31.08.2023

***SLR**

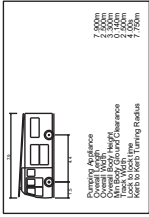
DRAWING NUMBER: 130935G_PD04_AT03
REVISION: -

Appendix H



Notes:

- 1. This is not a construction drawing and is intended for illustrative purposes only.
- 2. While lining is indicative only.
- 3. Based on Sheppard Robson layout: 6726-SRA-ZZ00-DR-A-02102
- 4. Based on Walsh SZ78 layout: W250-MAL-SH400-DR-C-950366_F1



REV	DETAILS	DRAWN	CHECKED	DATE
-	-	-	-	-

DISCUSSION

CLIENT: St William

PROJECT: Clarendon Phase 4

DRAWING TITLE: Swept Path Analysis
Fire Tender

SCALES: 1:500 at A3

DRAWN: MZ
CHECKED: GS
DATE: 31.08.2023

***SLR**

DRAWING NUMBER: 130935G_PD04_AT02
REVISION: -

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APPENDIX 1.4: AIR QUALITY ASSESSMENT, DATED AUGUST 2023



Phase 4 - Clarendon Gas Works, Wood Green

Air Quality Assessment

August 2023

Waterman Infrastructure & Environment Limited

5th Floor, One Cornwall Street, Birmingham, B3 2DX
www.watermangroup.com

Client Name: KSP/ URBAN PROP 8 S.À.R.L
Document Reference: WIE11636-100-R-1-2-1_AQ
Project Number: WIE11636

Quality Assurance – Approval Status

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 EN ISO 45001:2018)

Issue	Date	Prepared by	Checked by	Approved by
Draft	December 2022	Eleri Paterson Hughes Graduate Consultant	Andy Fowler Associate Director	Andy Fowler Associate Director
Issue	August 2023	Eleri Paterson Hughes Graduate Consultant	Andy Fowler Associate Director	Andy Fowler Associate Director

Comments

Comments

Disclaimer

This report has been prepared by Waterman Infrastructure & Environment Limited, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.

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Appendices

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Executive Summary

Waterman Infrastructure & Environment Limited (hereafter referred to as 'Waterman') was commissioned by St William (the Applicant) to undertake an air quality assessment for the Reserved Matters Application for Phase 4 of Clarendon Gas Works, Wood Green.

The Applicant secured part Full and part Outline planning consent in April 2018 for a 1,714 homes masterplan at the Clarendon Gas Works site, Wood Green. The purpose of the air quality assessment is to satisfy Planning Condition 32 of Permission HGY/2017/3117 and to assess the detailed elements now available of the previous outline application.

The Development would be car-free and would not result in a change in Annual Average Daily Traffic of more than 100 light duty vehicle flows or 25 heavy duty vehicle flows within or adjacent to an AQMA. The change in vehicle trips would therefore be below the Environmental Protection UK and Institute of Air Quality Management guidance criteria for Developments within an AQMA. In addition, the Development would not include a centralised combustion plant, and therefore would not give rise to any significant adverse air quality impacts.

Based on the low trip generation and absence of a centralised combustion plant, according to the EPUK / IAQM guidance, the Development is not expected to give rise to air quality impacts. As such the likely effect of the operational Development on local air quality would be not significant.

A review of the local monitoring data and Defra background maps, indicate pollutant concentrations for future users of the Development would be not significant.

1. INTRODUCTION

- 1.1. Waterman Infrastructure & Environment Limited (hereafter referred to as 'Waterman') was commissioned by St William (the Applicant) to undertake an air quality assessment for the Reserved Matters Application (RMA) for the Phase 4 of the Clarendon Gas Works development in Wood Green (hereafter referred to as the 'Site').
- 1.2. The Applicant secured planning consent in April 2018 for a residential-led hybrid scheme at the Clarendon Gas Works site, Wood Green. The purpose of this air quality assessment is to satisfy Part A and Part D of Planning Condition 32 of Permission HGY/2017/3117 (hereafter referred to as the Approved Development) and to assess the detailed elements now available of the previous outline application.
- 1.3. The wording of Planning Condition 32 of Permission HGY/2017/3117 is as follows.
 - *'Part A: Prior to the submission of any reserved matters, an updated air quality assessment shall be submitted and approved by the Council in line with best practice guidance and other guidance provided by the Council. The air quality assessment will:*
 - *Identify how the building works and related activities and the future operation and use of the development site may impact upon local air quality;*
 - *Model the impact of the development on local air quality using ADMS Urban, agreed traffic data, include surrounding developments, all site-wide emission sources (CHP, gas boilers, energy centres) and include scenarios of pre-agreed years and worst case;*
 - *Identify mitigation measures that are already part of any planned development and should any risk of exposure to poor air quality be determined, mitigation measures shall be included, where applicable, in the buildings design;*
 - *Identify possible additional mitigation measures that may be implemented to maintain and where possible improve air quality in the vicinity of the development;*
 - *Provide full details of measures that will be implemented to maintain and where possible improve air quality in the vicinity of the development;*
 - *Provide full details of measures that will be implemented to protect the internal air quality of buildings; and*
 - *Identify measures that will be implemented or continue to be implemented after the completion of the development with clear timescales of when information will be provided.*
 - *Part B: All measures identified within the approved air quality assessment that are to be installed during the course of the development will be fully implemented. No occupation will take place until a report demonstrating that each measure is fully implemented has been provided to the satisfaction of and approved in writing by the Planning Authority.*
 - *Part C: All measures identified within the approved air quality assessment that will be implemented or continue to be implemented after the completion of the development will be completed within agreed timescales. A report demonstrating that all such measures set out within the approved air quality assessment have been installed will be provided to the satisfaction of and approved in writing by the Planning Authority.*

- *Part D: No development works will take place for the outline element, until a detailed site –wide Air Quality Assessment in line with guidance from the GLA has been submitted and approved in writing by the Local Planning Authority.*
 - *Reason: To protect air quality and people's health by ensuring that the production of air pollutants, such as nitrogen dioxide and particulate matter, are kept to a minimum during the course of building works and during the lifetime of the development. To contribute towards the maintenance or to prevent further exceedances of National Air Quality Objectives.'*
- 1.4. To date; Phase 1 (172 units: 169 flats, 3 commercial units) and Phase 2 (450 units: 451 flats, 1 commercial unit) have been constructed. Phase 3 consisting of 487 units (481 flats, 6 commercial units) has been consented, and Phase 4 consisting of 377 flats and 10 commercial units is proposed. The above totals 1,498 units (1,478 flats, 20 commercial units), reafter referred to as the Development.
- 1.5. The transport consultants, Vectos, have confirmed the vehicle flows for the constructed, consented and proposed Phase 4 of the Development would be less than assessed for the Approved Development.
- 1.6. As the Development would not provide any additional vehicle movements than the Approved Development and would not include a centralised combustion plant, the Development. In accordance with the London Plan Guidance Air Quality Neutral, the Development is considered to fall under 'Excluded Development' and considered to meet both the transport and building emissions benchmarks. The Development would therefore be 'Air Quality Neutral' and has not been considered within this report.
- 1.7. The Site is approximately 47,500m² in area, and located approximately 600m south-west of Wood Green Town Centre within the administrative area of the London Borough of Haringey (LBH). The Site is currently brownfield land. The Site is bound by Coburg Road to the north, the B138 (Hornsey Park Road) is situated to the east beyond residential properties that front onto Hornsey Park Road, the A504 (Turnpike Lane) is situated 200m to the south of the Site in between which a mixed used area of commercial, leisure, education and residential uses are situated, and the East Coast Mainline Railway bounds the west of the Site. Western Road and Coburg Road form the north-western corner of the Site and Silsoe Road and Brook Road form the north-eastern corners. The Site is bisected by Mary Neuner Road which was constructed and opened in early 2008 and connects with Western Road in the north-west and Clarendon Road in the south-east.
- 1.8. LBH has designated an Air Quality Management Area (AQMA) for annual mean nitrogen dioxide (NO₂) and 24-hour mean particulate matter (PM₁₀) across the entire Borough. The Site is therefore located within this AQMA.
- 1.9. There are no changes to the predicted construction effects on local air quality as set out in Chapter 10: Air Quality of the 2017 Clarendon Gas Works, Wood Green Environmental Statement (2017 ES). Effects of construction on local air quality have therefore not been considered further.
- 1.10. The Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) planning development guidance¹ (EPUK / IAQM guidance) sets out criteria for when an air quality assessment is required to accompany a planning application. The criteria for whether an air quality assessment includes:
- a change of more than 100 Light Duty Vehicles (LDV's) or more than 25 Heavy Duty Vehicles (HDV) flows in Annual Average Daily Traffic (AADT) within or adjacent to an AQMA; or

¹ Environmental Protection UK & Institute of Air Quality Management (2017), 'Land-Use Planning & Development Control: Planning for Air Quality', EPUK & IAQM, London

- one or more substantial combustion processes, where there is a risk of impacts at relevant receptors.
- 1.11. As above, the transport consultants, Vectos, have confirmed the vehicle flows for the Development would be less than assessed for the Approved Development.
- 1.12. The energy strategy for the Approved Development consisted of the following:
- four Hoval Max 3-E 5000 shell and tube boilers (including 1 spare);
 - four Hoval Ultragas 1150 condensing boilers; and
 - one Jenbacher JMS620 Combined Heat and Power (CHP) plant.
- 1.13. The Development would connect to the district heating network number and does not propose to include the four Hoval Max 3-E 5000 shell and tube boilers. The energy strategy would therefore have a beneficial impact on local air quality when compared to the Approved Development.
- 1.14. The Development would be below the EPUK / IAQM guidance criteria for when an air quality assessment is required. Additionally, as the Development would not result in any adverse effects on local air quality when compared to the Approved Development, operational phase effects of the Development have therefore not been considered further.
- 1.15. The air quality assessment provides a review of the existing air quality at and surrounding the Site and is supported by an air quality positive statement.
- 1.16. The air quality assessment is supported by:
- Appendix A: Summary of Relevant Legislation, Planning Policy and Guidance;
 - Appendix B: Consultation with the London Borough of Haringey;
 - Appendix C: Air Quality Monitoring Report; and
 - Appendix D: Air Quality Positive Statement.

2. Air Quality Legislation, Planning Policy and Guidance

2.1. The following legislation, planning policy and guidance are considered relevant to this air quality assessment. A summary of these documents is provided in **Appendix A**:

- Legislation:
 - EU Framework Directive 2008/50/EC, 2008²;
 - Air Quality Standards Regulations, 2010³;
 - The UK Air Quality Strategy, 2007⁴;
 - The Environment Act 1995⁵;
- Planning Policy
 - National Planning Policy Framework, 2021⁶;
 - The London Plan: The Spatial Development Strategy for Greater London, March 2021⁷
 - London Environment Strategy, 2018⁸
 - London Borough of Haringey Unitary Development Plan 2006 (Policies Saved March 2013)⁹
 - London Borough of Haringey Local Plan: Strategic Policies 2013 - 2026, Consolidated with alterations since 2017¹⁰
 - Haringey's Local Plan: Development Management Development Plan Document, 2017¹¹
 - Haringey Local Plan: Site Allocations Development Plan Document, 2017¹²
 - London Borough of Haringey Sustainable Design & Construction: Supplementary Planning Document (2013)¹³; and
 - London Borough of Haringey Air Quality Action Plan, 2019 - 2024¹⁴.
- Guidance:
 - Department for Environment, Food and Rural Affairs, Clean Air Strategy, 2019¹⁵;
 - Improving Air Quality in the UK: Tackling Nitrogen Dioxide in our Towns and Cities. UK Air Quality Plan for Tackling Nitrogen Dioxide, 2017¹⁶;
 - Environmental Protection UK & Institute of Air Quality Management Guidance; Land-Use Planning & Development Control: Planning for Air Quality, 2017¹⁷

2 Council Directive 2008/50/EC of 21 May 2008 on ambient air quality and cleaner air for Europe.

3 Defra, (2010) The Air Quality Standards (England) Regulations.

4 Department of the Environment, Food and Rural Affairs (Defra), (2007). 'The Air Quality Strategy for England, Scotland, Wales & Northern Ireland'

5 Office of the Deputy Prime Minister (ODPM), 1995, 'The Environment Act' 1995.

6 Department for Communities and Local Government, 2021, 'National Planning Policy Framework'. DCLG, London.

7 Greater London Authority. 2021. The London Plan: The Spatial Development Strategy for Greater London, March 2021, GLA, London

8 Greater London Authority. 2018. London Environment Strategy, May 2018

9 London Borough of Haringey, 2006. Unitary Development Plan Policies Saved March 2013

10 London Borough of Haringey, 2017, London Borough of Haringey's Local Plan: Strategic Policies 2013-2026, Consolidated with alterations since 2017. HMSO

11 London Borough of Haringey, 2017. Development Management Development Plan Document, 2017

12 London Borough of Haringey, 2017. Haringey Local Plan: Site Allocations Development Plan Document. July 2016.

13 London Borough of Haringey (2013) Sustainable Design & Construction: Supplementary Planning Document

14 London Borough of Haringey Air Quality Action Plan 2019-2024

15 Defra (2019) Clean Air Strategy, 2019

16 Defra (2017) Improving Air Quality in the UK: Tackling nitrogen dioxide in our towns and cities. Draft UK Air Quality Plan for Tackling Nitrogen Dioxide (Consultation Document)

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

- Planning Practice Guidance¹⁸;
- Institute of Air Quality Management: Guidance on the Assessment of Dust from Demolition and Construction, 2014¹⁹;
- London Local Air Quality Management Policy Guidance, 2019²⁰;
- The Mayor's Air Quality Strategy 'Clearing the Air', 2010²¹;
- Mayor of London's Supplementary Planning Guidance: Sustainable Design and Construction, 2014²²; and
- Mayor of London: The Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance, 2014²³.

¹⁸ DCLG (2014), 'Planning Practice Guidance: Air Quality (ID 32)' (06 March 2014).

¹⁹ Institute of Air Quality Management, 2014, 'Guidance on the Assessment of dust from demolition and construction.

²⁰ Mayor of London (2019), 'London Local Air Quality Management (LLAQM) Policy guidance 2019 (LLAQM.PG (19))'.

²¹ Greater London Authority (GLA), 'The Mayor's Air Quality Strategy: Cleaning London's Air', London, 2002.

²² Greater London Authority (2014), 'Sustainable Design and Construction - Supplementary Planning Guidance', Greater London Authority, London.

²³ Mayor of London 2014 'The Control of Dust and Emissions During Construction and Demolition Supplementary Planning Guidance'

3. Baseline Conditions

London Borough of Haringey Review and Assessment of Air Quality

- 3.1. The latest LBH air quality review and assessment report, a 2020 Annual Status Report²⁴, identifies continued exceedances of the annual mean NO₂ AQS objective in 2017. As such, it was not considered appropriate to revoke or amend the AQMA.

London Borough of Haringey Local Monitoring

- 3.2. Due to the COVID-19 pandemic, 2020 and 2021 monitoring data was not considered representative of baseline air quality conditions at and surrounding the Site. However, 2020 and 2021 monitoring data has provided below for completeness.
- 3.3. LBH undertook monitoring of air quality at three locations within the Borough using automatic monitors in 2021. Details of the automatic monitors are presented below:
- Haringey Wood Green (HG005), a roadside monitor located approximately 0.5km east of the Site, measuring NO₂, PM₁₀ and PM_{2.5};
 - Haringey South (GB1024A), an urban background monitor located approximately 1.2km south of the Site, measuring NO₂; and
 - Haringey Roadside (GB0637A), a roadside monitor located approximately 3.2km north-east of the Site, measuring NO₂.
- 3.4. The monitoring results for the three LBH automatic monitors are presented in **Table 1**.

Table 1: Measured Concentrations at the LBH Automatic Monitors

Monitor	Pollutant	Averaging Period	AQS Objective	Year				
				2017	2018	2019	2020	2021
Haringey Wood Green (HG005)	NO ₂	Annual Mean (µg/m ³)	40µg/m ³	-	-	-	-	44.0
		1-Hour Mean (No. of Hours)	200µg/m ³ not to be exceeded more than 18 times a year	-	-	-	-	0
	PM ₁₀	Annual Mean (µg/m ³)	40µg/m ³	-	-	-	-	21.0
		24-Hour Mean (No. of Days)	50µg/m ³ not to be exceeded more than 35 times a year	-	-	-	-	0
	PM _{2.5}	Annual Mean	25 µg/m ³	-	-	-	-	10.0
Haringey South (GB1024A)	NO ₂	Annual Mean (µg/m ³)	40µg/m ³	40.0	39.0	37.0	33.0	32.0
		1-Hour Mean (No. of Hours)	200µg/m ³ not to be exceeded more than 18 times a year	5	0	0	0	0
	NO ₂	Annual Mean (µg/m ³)	40µg/m ³	24.0	23.0	22.0	16.0	18.0

²⁴ London Borough of Haringey Air Quality Annual Status Report for 2020

Haringey Roadside (GB0637A)	1-Hour Mean (No. of Hours)	200µg/m ³ not to be exceeded more than 18 times a year	0	0	0	0	0
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Notes: Data obtained from London Borough of Haringey Air Quality Annual Status Report for 2021
Exceedences of the AQS Objectives are shown in **bold**

- 3.5. The monitoring results in **Table 1** indicate the annual mean NO₂ objective of 40µg/m³ was exceeded at the Haringey Wood Green (HG005) automatic monitor in 2021 and the Haringey South (GB1024A) automatic monitor in 2017. All other AQS objectives were met for all pollutants at all monitors in all years.
- 3.6. Pollutant concentrations have decreased at both Haringey South (GB1024A) and Haringey Roadside (GB0637A) automatic monitors from 2017 to 2021.
- 3.7. In 2021, NO₂ was also measured at 37 locations using diffusion tubes. **Table 2** presents the most recent monitoring data for the 19 nearest diffusion tube locations to the Site.

Table 2: Measured Concentrations at the LBH diffusion tubes within 2.0km of the Site

Site ID	Location	Classification	Distance to Site (km)	Annual Mean NO ₂ Concentration (µg/m ³)				
				2017	2018	2019	2020	2021
HR51	76 Coburg Road	Roadside	0.2	-	-	-	-	20.4
HR31	97/101 High Road	Roadside	0.5	52.0	65.0	67.8	71.5	62.3
HR08	7 Cross Lane	Urban Background	0.5	27.0	19.0	29.5	20.3	25.3
HR57	Campsbourne School Nightingale Lane	Roadside	0.7	-	-	-	-	19.9
HR44	North Harringay Primary School	Roadside	0.9	-	-	-	-	19.9
HR53	56 Partridge Way	Roadside	1.1	-	-	-	-	22.5
HR50	Belmont Junior School, Rusper Road	Roadside	1.3	-	-	-	-	19.2
HR46	St John Vianney Roman Catholic Primary School	Roadside	1.3	-	-	-	-	20.6
HR27	The Old Surgery, 572 Green Lanes	Roadside	1.4	33.0	31.0	36.4	29.0	32.7
HR21	Lordship Lane Primary School	Roadside	1.4	30.0	-	23.0	22.0	21.4
HR54	Woodside High Road/ White Hart Lane	Roadside	1.5	-	-	-	-	20.9
HR24	Westbury Medical Centre, 205 Westbury Av.	Roadside	1.5	33.0	33.0	34.1	28.7	30.8
HR52	263 Victoria Road	Roadside	1.6	-	-	-	-	28.7

HR37	Weston Park/Broadway, 48 The Broadway	Roadside	1.6	-	36.0	42.2	29.6	32.3
HR28	Bounds Green Primary School	Roadside	1.6	34.0	-	30.7	29.0	30.5
HR43	St Aidan's VC Primary School	Roadside	1.8	-	-	-	-	19.3
HR35	Chestnuts Primary School	Roadside	1.9	22.0	31.0	30.5	22.3	23.8
HR34	Coleridge Primary school	Roadside	1.9	31.0	31.0	32.1	28.2	29.7
HR41	258 Muswell Hill Broadway,	Roadside	2.0	-	-	-	-	42.5

Notes: Data obtained from London Borough of Haringey Air Quality Annual Status Report for 2021
Exceedences of the AQS Objectives shown in **bold**

- 3.8. The NO₂ diffusion tube results summarised in **Table 2** indicate the annual mean NO₂ objective was exceeded in all years at the 97/101 High Road (HR31) diffusion tube, in 2019 at the Weston Park/Broadway (HR37) diffusion tube and at the 258 Muswell Hill Broadway (HR41) diffusion tube in 2021. The annual mean NO₂ objective was met at all other diffusion tubes in all years.
- 3.9. Of the nine diffusion tubes that have been monitoring since at least 2018, annual mean NO₂ concentrations have decreased from 2017 / 2018 to 2021 at eight of the nine diffusion tubes. The 97/101 High Road, N22 6BB (HR31) diffusion tube recorded an increase in annual mean NO₂ concentrations from 2017 to 2021.

Waterman Short Term Diffusion Tube Study, March 2021 to September 2021

- 3.10. **Appendix C** provides the full details of the Waterman diffusion tube study, including the annualisation process to derive the annual mean from the 6-month monitoring data. The six-month monitoring period and locations were agreed with the LBH pollution team (**Appendix B**). A summary of the results is presented in **Table 3**. The location of the diffusion tubes is shown in Figure A1 in **Appendix C**.

Table 3: Waterman Diffusion Tube Annual Mean NO₂ Concentrations

Site ID	Location	Estimated 2019 Annual Mean NO ₂ Concentrations (µg/m ³)
DT1	Alexandra Road	28.1
DT2	Clarendon Road	26.9
DT3	Ravenstone Road	28.4
DT4	Malvern Road	29.6
DT5	Mayes Road	36.9
DT6	Coburg Road	26.2
DT7	Brook Road	25.1
DT8	Western Road	25.5

- 3.11. As indicated by **Table 3**, the monitored estimated annual mean NO₂ concentrations are at or below the annual mean objective value of 40µg/m³ at all eight locations. These concentrations indicate

the greatest source of pollution at the Site is traffic on Mayes Road with a 2019 annual mean concentration estimated to be $36.9\mu\text{g}/\text{m}^3$.

4. Operational Development

Effects of the Development on Local Air Quality

- 4.1. The Development would not result in a change in AADT of more than 100 light duty vehicle flows or 25 heavy duty vehicle flows within or adjacent to an AQMA, when compared to the Approved Development. This change in vehicle trips would be below the EPUK / IAQM guidance criteria for developments within an AQMA.
- 4.2. Additionally, the Development would connect to the district heating network number and does not propose to include the four Hoval Max 3-E 5000 shell and tube boilers. The energy strategy would therefore have a beneficial impact on local air quality when compared to the Approved Development.
- 4.3. The effect of the Development on local air quality was therefore considered to be **not significant**.

Predicted Future Exposure

- 4.4. Phase 4 of the Development is located adjacent to Coburg Road to the north, Mayes Road to the east and Hornsey Road to the south-east. In accordance with the LAQM Technical Guidance (22)²⁵, it is considered the Development, for a conservative assessment, could be representative of roadside locations.
- 4.5. The diffusion tube on Mayes Road (DT5) from the Waterman short term diffusion tube study was considered the most representative of conservative annual mean NO₂ concentrations future users of the Development would be exposed to. The predicted 2019 annual mean NO₂ concentration at the Mayes Road (DT5) diffusion tube was 36.9µg/m³.
- 4.6. The 2021 annual mean PM₁₀ and PM_{2.5} concentrations at the Haringey Wood Green (HG005) automatic monitor were 21.0 µg/m³ and 10µg/m³ respectively. Although due to the COVID-19 pandemic, 2021 monitoring data was not considered representative of baseline air quality conditions, the Haringey Wood Green (HG005) automatic monitor is located in area exposed to higher PM₁₀ and PM_{2.5} concentrations than the Site. In the absence of available 2019 PM₁₀ and PM_{2.5} monitoring data, the 2021 monitoring data from the Haringey Wood Green (HG005) automatic monitor was considered representative of PM₁₀ and PM_{2.5} concentrations at the Site. The PM₁₀ and PM_{2.5} concentrations at the Haringey Wood Green (HG005) automatic monitor were below the AQS objectives in 2021.
- 4.7. Based on the pollutant concentrations in **Tables 1, 2 and 3**, it is considered the AQS objectives are likely to be met for future users of the Site. The effect of Phase 4 of the Development on air quality would therefore be **not significant**.

Mitigation Measures and Likely Residual Effects

- 4.8. As identified earlier in this report, even in the absence of mitigation, Phase 4 of the Development is predicted to have a **not significant** effect on local air quality. Accordingly, mitigation measures would not be required so **residual effects** would be **not significant**.
- 4.9. However, air quality mitigation measures have been included as part of the Development, which are likely to have a benefit to air quality and to ensure the operational Development does not delay compliance to the EU Limit Value.

²⁵ Local Air Quality Management Technical Guidance (TG22) August 2022

4.10. **Table 4** presents the air quality mitigation measures included as part of the Development.

Table 4: Summary of Mitigation Measures included as part of Phase 4 of the Development

Phase	Mitigation Measures
Inherent – Measures included in the design of the Development	All residential units would be located off the ground floor level and away from road traffic sources
	Car parking spaces provided for residential use only
	Provision of 640 long stay and 24 short-stay cycle parking spaces, higher than the London Plan requirements
	Provision of trees and plants. Where possible species would be selected that are known to benefit air quality.
Operational Development	Provision and monitoring of Travel Plan and Delivery and Servicing Plan
	Provision of electric charging points as per the London Plan requirements
	3 car club bays will be provided along Mary Neuner Road

Planning Condition 32 of Permission HGY/2017/3117

4.11. This air quality assessment addresses Planning Condition 32 of Permission HGY/2017/3117. The Development would not result in any exposure to poor air quality, however mitigation measures to maintain and likely benefit air quality conditions are summarised in **Table 4** and **Appendix D**.

5. Summary and Conclusions

- 5.1. Phase 4 of the Development would be car free, and the vehicle flows generated by the Development would not result in a change of more than 100 LDVs or 25 HDVs AADT. The vehicle flows generated by the Development would therefore be below the EPUK / IAQM guidance criteria for when an air quality assessment is required. Additionally, the Development would not include a centralised combustion plant. Based on the low trip generation and the absence of centralised combustion plant, and in accordance with the EPUK / IAQM guidance, the Development is not expected to give rise to air quality impacts. As such the likely effect of the operational Development on local air quality would be **not significant**.
- 5.2. A review of the Waterman Short Term Diffusion Tube Study, LBH monitoring data and Defra Background map concentrations indicate that NO₂, PM₁₀ and PM_{2.5} concentrations would be suitable for future users of the Phase 4 of the Development. The effect of Phase 4 of the Development on future users would be **not significant**.

APPENDICES

**Appendix A Summary of Relevant Legislation, Planning Policy and
Guidance**

Appendix A: Summary of Relevant Legislation, Planning Policy and Guidance

Legislation

EU Framework Directive 2008/50/EC, 2008

Air pollutants at high concentrations can have adverse effects on the health of humans and ecosystems. European Union (EU) legislation on air quality forms the basis for UK legislation and policy on air quality.

The EU Framework Directive 2008/50/EC on ambient air quality assessment and management came into force in May 2008 and was implemented by Member States, including the UK, by June 2010. The Directive aims to protect human health and the environment by avoiding, reducing or preventing harmful concentrations of air pollutants.

Air Quality Standards Regulations, 2010

The Air Quality Standards Regulations implement Limit Values prescribed by the EU Framework Directive 2008/50/EC. The Limit Values are legally binding and the Secretary of State, on behalf of the UK Government, is responsible for their implementation.

The UK Air Quality Strategy, 2007

The current UK Air Quality Strategy (UK AQS) was published in July 2007 sets out the objectives for Local Planning Authorities (LPA) in undertaking their Local Air Quality Management (LAQM) duties. The 2007 UK AQS introduced a national level policy framework for exposure reduction for fine particulate matter. Objectives in the UK AQS are in some cases more onerous than the Limit Values set out within the relevant EU Directives and the Air Quality Standards Regulations 2010. In addition, objectives have been established for a wider range of pollutants.

The UK AQS objectives of air pollutants relevant to this assessment are summarised in **Table A1**.

Table A1: Summary of Relevant UK AQS Objectives

Pollutant	Objective		Date by which Objective to be Met
	Concentration	Measured as	
Nitrogen Dioxide (NO ₂)	200µg/m ³	1 hour mean not to be exceeded more than 18 times per year	31/12/2005
	40µg/m ³	Annual Mean	31/12/2005
Particulate Matter (PM ₁₀) ^(a)	50µg/m ³	24 hour mean not to be exceeded more than 35 times per year	31/12/2004
	40µg/m ³	Annual Mean	31/12/2004
Particulate Matter (PM _{2.5}) ^(b)	Target of 15% reduction in concentrations at urban background locations	Annual Mean	Between 2010 and 2020
	25µg/m ³	Annual Mean	01/01/2020

Note: (a) Particulate matter with a mean aerodynamic diameter less than 10 microns (or micrometres – µm)
(b) Particulate matter with a mean aerodynamic diameter less than 2.5 microns

The Environment Act, 1995

In a parallel process, the Environment Act 1995 required the preparation of a national air quality strategy setting health-based air quality objectives for specified pollutants and outlining measures to be taken by LPAs in relation to meeting these objectives (the LAQM system).

Part IV of the Environment Act 1995 provides a system of LAQM under which LPAs are required to review and assess the future quality of the air in their area by way of a staged process. Should this process suggest that any of the AQS objectives will not be met by the target dates, the LPA must consider the declaration of an Air Quality Management Area (AQMA) and the subsequent preparation of an Air Quality Action Plan (AQAP) to improve the air quality in that area in pursuit of the AQS objectives.

Planning Policy

National Planning Policy

National Planning Policy Framework, 2021

The National Planning Policy Framework (NPPF), published in July 2021 sets out the Government's planning policies for England and how these should be applied.

Paragraph 105 states *"The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."*

Paragraph 174 states *"Planning policies and decisions should contribute to and enhance the natural and local environment by: ... preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans"*

Paragraph 185 states *"Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development."*

Paragraph 186 states *"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan."*

Regional Planning Policy

The London Plan: The Spatial Development Strategy for Greater London, March 2021

The Mayor of London's London Plan¹ will run to 2041 to provide a longer-term view of London's development to inform decision making.

Policy SI1 'Improving air quality' states that:

"A. Development plans, through relevant strategic, site specific and area-based policies should seek opportunities to identify and deliver further improvements to air quality and should not reduce air quality benefits that result from the Mayor's or boroughs' activities to improve air quality.

B. To tackle poor air quality, protect health and meet legal obligations the following criteria should be addressed:

1. Development proposals should not:

- a) lead to further deterioration of existing poor air quality*
- 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.*

2. In order to meet the requirements in Part 1, as a minimum:

- a) Development proposals must be at least air quality neutral*
- b) Development proposals should use design solutions to prevent or minimise increased exposure to existing air pollution and make provision to address local problems of air quality in preference to post-design or retro-fitted mitigation measures*
- c) Major development proposals must be submitted with an Air Quality Assessment. Air quality assessments should show how the development will meet the requirements of B1*
- d) Development proposals in Air Quality Focus Areas or that are likely to be used by large numbers of people particularly vulnerable to poor air quality, such as children or older people, which do not demonstrate that design measures have been used to minimise exposure should be refused.*

C. Masterplans and development briefs for large-scale development proposals subject to an Environmental Impact Assessment should consider how local air quality can be improved across the area of the proposal as part of an air quality positive approach. To achieve this a statement should be submitted demonstrating:

- a) How proposals have considered ways to maximise benefits to local air quality, and*
- b) What measures or design features will be put in place to reduce exposure to pollution, and how they will achieve this.*

D. In order to reduce the impact on air quality during the construction and demolition phase development proposals must demonstrate how they plan to comply with the Non-Road Mobile

¹ Greater London Authority. 2021. The London Plan: The Spatial Development Strategy for Greater London, March 2021, GLA, London

Machinery Low Emission Zone and reduce emissions from the demolition and construction of buildings following best practice guidance.

E. 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’.

It may not always be possible in practice for developments to achieve Air Quality Neutral standards or to acceptably minimise impacts using on-site measures alone. If a development can demonstrate that it has exploited all relevant on-site measures it may be possible to make the development acceptable through additional mitigation or offsetting payments”.

London Environment Strategy, 2018

The London Environment Strategy includes the following proposals to improve air quality:

- The introduction of the toxicity charge (T-charge) from October 2017 and the Ultra-Low Emission Zone by 2019;
- Making the whole bus fleet zero emission by 2037 and phasing out fossil fuels in the taxi and private hire fleets;
- The Mayor working with government and other partners to seek reductions in emissions from aviation activity (in London and the south east particularly from Heathrow), and also from rail transport and at stations;
- Providing better information about air quality, especially during high and very high pollution episodes;
- Using the planning system to help ensure that new schools and other buildings that will be used by people who are particularly vulnerable to pollutants are not located in areas of poor air quality;
- The Mayor promoting and prioritising more sustainable travel in London including walking, cycling and public transport, as part of the Healthy Streets Approach; and
- Considering introducing a new Air Quality Positive standard so new building developments would ensure that emissions and exposure to pollution are reduced.

Local Planning Policy

London Borough of Haringey Unitary Development Plan 2006 (Policies Saved March 2013)

The LBH Unitary Development Plan² (UDP) was adopted in 2006. It has been partly superseded by LBH’s Local Plan: Strategic Policies but contains ‘saved’ policies which continue to be used until the adoption of other LDF documents. Saved Policy Env 7: ‘Air, Water and Light Pollution’ states that:

‘The Council will control potential pollution resulting from development in the borough by:

- a) requiring development to locate close to facilities and public transport;*
- b) requiring developments to include measures to avoid, reduce and only then mitigate the emissions of pollutants, where appropriate;*

² London Borough of Haringey, 2006. Unitary Development Plan Policies Saved March 2013

- c) *separating potentially polluting activities from sensitive areas (green belt, MOL or ecologically valuable sites) or uses (schools, hospitals, homes); and*
- d) *requiring developments that may cause pollution to locate in areas such as the defined employment areas to minimise their impact on the environment.*

The Council will adopt the precautionary principle to the issue of pollution, by taking decisions on planning applications so as to avoid possible environmental damage when the scientific evidence for acting is inconclusive but the potential damage could be great'.

London Borough of Haringey Local Plan: Strategic Policies 2013 - 2026, Consolidated with alterations since 2017

The Local Plan sets out the future development of the Borough up to 2026. The plan, alongside the saved UDP policies, sets out how LBH will deliver local and strategic development needs including housing, employment, leisure, and retail provision. In terms of air quality, the Local Plan refers to saved Policy ENV 7: 'Air, Water and Light Pollution' in the above UDP (as discussed above).

Haringey's Local Plan: Development Management Development Plan Document, 2017

The Development Management Development Plan Document sets out more detailed planning policy requirements for new development proposals in Haringey, in support of the Local Plan. Policy DM23: Environmental Protection refers to air quality and states the following:

- "A) *All development proposals should consider air quality and be designed to:*
- a) *Improve or mitigate the impact on air quality in the Borough; and*
 - b) *Improve or mitigate the impact on air quality for the occupiers of the building or users of the development.*
- B) *Air quality assessments will be required for all major development and other development proposals, where appropriate.*
- C) *Where necessary, adequate mitigation must be provided."*

Haringey Local Plan - Site Allocations Development Plan Document, 2017

The Development Plan Document states that 'Management of air quality and noise will be required to ensure that the transport and residential uses are complementary'.

With regard air quality, Policy DM23: Environmental Protection Air Quality states:

- 'A. *All development proposals should consider air quality and be designed to:*
- a) *Improve or mitigate the impact on air quality in the Borough; and*
 - b) *Improve or mitigate the impact on air quality for the occupiers of the building or users of the development.*
- B. *Air quality assessments will be required for all major development and other development proposals, where appropriate.*
- C *Where necessary, adequate mitigation must be provided'.*

London Borough of Haringey Sustainable Design & Construction: Supplementary Planning Document (2013)

The LBH Sustainable Design and Construction Supplementary Planning Document (SPD) states that all major developments require an Air Quality Assessment (AQA) to be submitted with the planning application and that any mitigation measures should be incorporated into the design prior to submission.

London Borough of Haringey Air Quality Action Plan, 2019 - 2024

The LBH Air Quality Action Plan outlines the actions that Haringey will deliver between 2019-2024 to reduce concentrations of pollution, and exposure to pollution; thereby positively impacting on the health and quality of life of residents and visitors to the borough.

Guidance

Department for Environment, Food and Rural Affairs, Clean Air Strategy, 2019

Published in January 2019 the Clean Air Strategy sets out a coherent framework and national action to improve air quality throughout the UK.

The Strategy is underpinned by new national powers to control major sources of air pollution, in line with the risk they pose to public health and the environment, plus new local powers to act in areas with an air pollution problem. The Strategy also supports the creation of Clean Air Zones to lower emissions from all sources of air pollution, backed up with clear enforcement mechanisms.

Improving Air Quality in the UK: Tackling Nitrogen Dioxide in our Towns and Cities. UK Air Quality Plan for Tackling Nitrogen Dioxide, 2017

The UK Government was required by the High Court to release an Air Quality Plan to meet the NO₂ Limit Value in the shortest timescale as possible. This document was adopted on 26th July 2017.

The plan focuses on reducing concentrations of NO_x and NO₂ around road vehicle emissions within the shortest possible time. With the principal aims to:

- a. reduce emissions of NO_x from the current road vehicle fleet in problem locations now; and*
- b. accelerate road vehicle fleet turnover to cleaner vehicles to ensure that the problem remains addressed and does not move to other locations.*

The other aims include reducing background concentrations of NO_x from:

- Other forms of transport such as rail, aviation and shipping;
- Industry and non-road mobile machinery; and
- Buildings, both commercial and domestic, and other stationary sources.

The Plan provides measures to reduce NO_x and NO₂ concentrations in the UK, such measures include:

- Mandate local authorities to implement Clean Air Zones within the shortest possible time;
- Consultation on proposal for a Clean Air Zone Framework for Wales;
- Consultation on a draft National Low Emission Framework for Scotland;
- Commitment to establishing a Low Emission Zone for Scotland by 2018;

- Tackling air pollution on the English Road network;
- New real driving emissions requirement to address real world NOx emissions;
- Additional funding to accelerate uptake of hydrogen vehicles and infrastructure;
- Additional funding to accelerate the uptake of electric taxis;
- Further investment in retrofitting alongside additional support of low emission buses and taxis;
- Regulatory changes to support the take up of alternatively fuelled light commercial vehicles;
- Exploring the appropriate tax treatment for diesel vehicles;
- Call for evidence on updating the existing HGV Road User Levy;
- Call for evidence on use of red diesel;
- Ensure wider environmental performance is apparent to consumers when purchasing cars;
- Updating Government procurement policy;
- New emissions standards for non-road mobile machinery;
- New measures to tackle NOx emissions from Medium Combustion Plants; and
- New measures to tackle NOx emissions from generators.

The above measures do not provide any actions which are relevant to the operation or design of the Development.

A High Court ruling³ on 21st February 2018, stated the UK Governments air quality improvement plan adopted on 31st July 2017 was unlawful as *'it does not contain measures sufficient to ensure substantive compliance with the 2008 Directive and the English Regulations'*. The UK Government *'must ensure steps are taken to achieve compliance as soon as possible, by the quickest route possible and by a means that makes that outcome likely'*.

The judgement stated that the UK Government must produce a supplementary plan, setting out requirements for feasibility studies to be undertaken in the 33 Local Authority Areas. Greater London including LBH is not considered within this judgement.

Environmental Protection UK & Institute of Air Quality Management Guidance; Land-Use Planning & Development Control: Planning for Air Quality, 2017

Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM) provide guidance for air quality considerations within the local development control processes, promoting a consistent approach to the treatment of air quality issues.

The EPUK and IAQM guidance explains how development proposals can adopt good design principles to reduce emissions and contribute to better air quality. The guidance also provides a method for screening the need for an air quality assessment and a consistent approach for describing the impacts at individual receptors. The EPUK and IAQM Guidance, advises that:

"In arriving at a decision about a specific proposed development the local planning authority is required to achieve a balance between economic, social and environmental considerations. For this reason, appropriate consideration of issues such as air quality, noise and visual amenity is necessary. In terms of air quality, particular attention should be paid to:

- *Compliance with national air quality objectives and of EU Limit Values;*

³ <https://www.judiciary.gov.uk/judgments/the-queen-on-the-application-of-clientearth-no-3-claimant-v-secretary-of-state-for-environment-food-and-rural-affairs-and-others/>

- *Whether the development will materially affect any air quality action plan or strategy;*
- *The overall degradation (or improvement) in local air quality; or*
- *Whether the development will introduce new public exposure into an area of existing poor air quality".*

Planning Practice Guidance

The Government's online Planning Practice Guidance (PPG) states that air quality concerns are more likely to arise where development is proposed within an area of existing poor air quality, or where it would adversely impact upon the implementation of air quality strategies and / or action plans. The PPG notes that when deciding whether air quality is relevant to a planning application, considerations would include whether the development would lead to:

- Significant effects on traffic, such as volume, congestion, vehicle speed, or composition;
- The introduction of new point sources of air pollution, such as furnaces, centralised boilers and Combined Heat and Power (CHP) plant; and
- Exposing occupants of any new developments to existing sources of air pollutants and areas with poor air quality.

Institute of Air Quality Management: Guidance on the Assessment of Dust from Demolition and Construction, 2014

The IAQM Construction Dust Guidance provides guidance to consultants and Environmental Health Officers (EHOs) on how to assess air quality impacts from construction related activities. The guidance provides a risk based approach based on the potential dust emission magnitude of the site (small, medium or large) and the sensitivity of the area to dust impacts. The importance of professional judgement is noted throughout the guidance. The guidance recommends that once the risk class of the site has been identified, the appropriate level of mitigation measures are implemented to ensure that the construction activities have no significant impacts.

London Local Air Quality Management Policy Guidance, 2019

The London Local Air Quality Management Policy Guidance LLAQM.PG(19) provides additional guidance on how London Boroughs can better manage air pollution in their authority. Setting out requirements within their Process and Responsibilities, Air Quality Management Areas, Air Quality Action Plans, PM_{2.5} and Public Health and Planning and the Building Control System.

The Mayor's Air Quality Strategy 'Clearing the Air', 2010

The Greater London Authority (GLA) Act 1999⁴ requires the GLA to produce an AQS for Greater London that sets out air quality objectives (to be no less stringent than national objectives) and present measures that the Mayor, GLA and London Boroughs will take towards meeting these objectives. The Mayor's AQS⁵ aims to improve air quality within London by targeting the reduction of emissions related to transport and construction. Some of the initiatives proposed are as follows:

- Targeted measures for areas with poor air quality; and

⁴ Greater London Authority (GLA), 'The Mayor's Air Quality Strategy: Cleaning London's Air', London, 2002.

⁵ Greater London Authority (2010), 'Clearing the air – The Mayor's Air Quality Strategy', GLA, London.

- Use of the planning system for reducing emissions from new developments.

Mayor of London's Supplementary Planning Guidance: Sustainable Design and Construction, 2014

The Sustainable Design and Construction Supplementary Planning Guidance (SPG) provides guidance to support the implementation of the London Plan. Section 4.3 of the SPG focusses on air pollution and the effects from the construction and operation of new developments to ensure that they are 'Air Quality Neutral'. Emission benchmarks are provided within the SPG for:

- Emissions from buildings; and
- Transport emissions.

The SPG sets out the criteria for when an Air Quality Neutral Assessment is required. This includes:

- For dwellings: where 10 or more are to be constructed (or if number not given, area is more than 0.5 hectares); and/or
- For all other uses: where the floor space is 1000 square metres or more (or the size area is 1 hectare or more,

Section 4.3.17 and Appendix 5 of the SPG note that two sets of Building Emission Benchmarks (BEBs) have been defined for a series of land-use classes, one for NO_x and one for PM₁₀. Section 4.3.18 and Appendix 6 of the SPG note that the design of a development should encourage and facilitate walking, cycling and the use of public transport, thereby minimising the generation of air pollutants.

Given the Proposed Development is car free and there are no emissions to air from the heating and energy plant, the Proposed Development is Air Quality Neutral and has not been considered further.

Mayor of London: The Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance, 2014

The Control of Dust and Emissions during Construction and Demolition SPG seeks to reduce emissions of dust, PM₁₀ and PM_{2.5} from construction and demolition activities in London. It also aims to manage emissions of NO_x from construction and demolition plant by means of a new non-road mobile machinery Ultra-Low Emissions Zone (ULEZ). The SPG provides guidance on the implementation of London Plan Policy 7.14 'Improving Air Quality', as well as a range of policies that deal with environmental sustainability, health and quality of life.

Appendix B**Consultation with the London Borough of Haringey**

Appendix B: Consultation with London Borough of Haringey

From: [REDACTED]

Sent: 11 November 2022 17:08

To: [REDACTED]
[REDACTED]
[REDACTED]

Subject: RE: RMA for Phase 4 of the Clarendon Square Development - Air Quality Assessment Methodology

Thank you for your response.

The air quality assessment will be undertaken in accordance with the relevant guidance.

Kind Regards,

[REDACTED]

[REDACTED]

BSc (Hons) CEnv
Associate Director – Air Quality
Waterman Infrastructure & Environment Ltd



Pickfords Wharf | Clink Street | London SE1 9DG

[REDACTED]

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From: Pollution <Pollution@haringey.gov.uk>

Sent: 09 November 2022 16:06

To: [REDACTED]
[REDACTED]

Cc: [REDACTED]
[REDACTED]

Subject: RE: RMA for Phase 4 of the Clarendon Square Development - Air Quality Assessment Methodology

Dear [REDACTED],

Good afternoon and thanks for your updated email the contents of which are noted.

However, as long as the proposed development meet the threshold for AQ assessment as stipulated in the relevant guidance, you will still need to carry this out.

As regards your previous comment on the 24th October, we are happy for you to use the council data to verified the model.

Regards,

Pollution Team

From: [REDACTED]
Sent: 27 October 2022 17:05
To: Pollution <Pollution@haringey.gov.uk>
Cc: [REDACTED]
[REDACTED]

Subject: RE: RMA for Phase 4 of the Clarendon Square Development - Air Quality Assessment Methodology

Good afternoon,

Further to our email correspondence below I have had confirmation from the transport consultants the vehicle flows for the development constructed / consented and currently being proposed as part of Phase 4 (The Development) would be less than the quantum of development granted consent (Consented Development).

Additionally, The Development would now connect to the district heating network number and the number of boilers now proposed would be more efficient and less in number than the Consented Development.

The emissions generated by the Development on local air quality would be less than that of Consented Development, and as a result the effect on local air quality would be less.

As a result, we do not envisage that an updated air quality assessment would be required at this stage, instead I propose undertaking a statement of conformity for the air quality element of Phase 4. In addition an air quality neutral assessment would be undertaken to ascertain the impact of Phase 4 of the Development against the air quality neutral benchmarks.

I welcome your thoughts on the change of approach

Kind Regards,

[REDACTED]

[REDACTED]
BSc (Hons) CEnv
Associate Director – Air Quality
Waterman Infrastructure & Environment Ltd



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From: [REDACTED]

Sent: 24 October 2022 13:32

To: Pollution <Pollution@haringey.gov.uk>

Cc: [REDACTED]

Subject: RE: RMA for Phase 4 of the Clarendon Square Development - Air Quality Assessment Methodology

That's great, thanks very much.

Just to confirm, would you like the model verified with council data only?

Kind Regards,

[REDACTED]

[REDACTED]

BSc (Hons) CEnv

Associate Director – Air Quality

Waterman Infrastructure & Environment Ltd



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From: Pollution <Pollution@haringey.gov.uk>

Sent: 21 October 2022 16:36

To: [REDACTED]

Cc: [REDACTED]

Subject: RE: RMA for Phase 4 of the Clarendon Square Development - Air Quality Assessment Methodology

Dear [REDACTED]
Good afternoon.

We take note of your proposed AQA Scope and Methodology and we have no objection to this.

However, we will like to advice that; you will need to verified the model with the nearest existing council automatic or passive monitoring location where we have been monitoring for years rather than the only site-specific diffusion tube monitoring data which is for six months.

We hope the above clarify your request?

Your sincerely,

Pollution Team

From: [REDACTED]

Sent: 05 October 2022 15:53

To: Pollution <Pollution@haringey.gov.uk>

Cc: [REDACTED]

Subject: RMA for Phase 4 of the Clarendon Square Development - Air Quality Assessment Methodology

Good afternoon,

I would like to agree with the London Borough of Haringey the scope for an air quality assessment for the RMA for Phase 4 of the Clarendon Square Development.

We propose to undertake a qualitative assessment of the potential impacts of the development on local air quality during construction, in accordance with the Mayor of London's Control of Dust and Emissions Supplementary Planning Guidance. This would use best practice guidance to assess dust nuisance and construction plant/ vehicles, detailing any mitigation measures required.

The Non-Road Mobile Machinery (NRMM) would meet Stage IIIB of EU Directive 97/68/EC as a minimum. As such, the impact of NRMM on local air quality would not be significant and in line with the *IAQM Guidance on the assessment of dust from demolition and construction*, it is considered that an assessment on the NRMM would not be required.

We propose to use the detailed dispersion model ADMS roads to model the existing, future without development and future with development scenarios at existing sensitive receptors in proximity to the Site and within the domain of the roads modelled. The model will also consider the likely future concentrations users of the Development would be exposed too. As part of the inputs as traffic flows follow a diurnal variation throughout the day and week, the ADMS-Roads model will therefore include the DfT traffic profile for all roads nationally. Additionally the point source emissions from CHP / Boiler emissions or generators are proposed, they would be modelled using ADMS 5.

The model will be verified using the results from the site-specific diffusion tube monitoring undertaken from March to September 2021. The monitoring locations for the diffusion tube study were provided by [REDACTED] in March 2021. The adjustment factor, if required, would then be used to adjust the baseline and future with and without development scenarios.

Further to the above, in accordance with the London Plan, an Air Quality Neutral Assessment would be undertaken.

I welcome your thoughts on the proposed methodology.

Kind Regards,

Andy

[REDACTED]

Associate Director – Air Quality

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Appendix C**Air Quality Monitoring Report**



Clarendon Square

Air Quality Monitoring Report

November 2021

Waterman Infrastructure & Environment Limited

Pickfords Wharf, Clink Street, London SE1 9DG
www.watermangroup.com

Client Name: St William
Document Reference: WIE11636-109-AQMR-1-1-7
Project Number: WIE11636-109

Quality Assurance – Approval Status

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 EN ISO 45001:2018)

Issue	Date	Prepared by	Checked by	Approved by
First	November 2021	Eleri Paterson Hughes Graduate Consultant	Andrew Fowler Associate Director	Andrew Fowler Associate Director

Comments

Comments

Disclaimer

This report has been prepared by Waterman Infrastructure & Environment Limited, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporation of our General Terms and Condition of Business and taking account of the resources devoted to us by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at its own risk.

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Figure 1: Diffusion Tube Monitoring Locations

Appendices

Appendix A Precision and Accuracy Spreadsheet

1. Introduction

- 1.1. A short-term air quality monitoring study for nitrogen dioxide (NO₂) was undertaken at and around Clarendon Square, within the London Borough of Haringey (LBH). This is hereafter referred to as the Site and the boundary is shown in **Figure A1**. The monitoring study was undertaken from March 2021 to September 2021 to establish current air quality conditions at and surrounding the Site. Six months' worth of monitoring data was obtained.
- 1.2. The Site occupies 4.9 hectares of land and is dissected by Mary Neuner Road which runs north to south through the centre of the Site. The Site is bound by commercial development and Coburg Road to the north, residential properties along Hornsey Park Road to the east, commercial development along Clarendon Road to the south, and railway tracks to the west.
- 1.3. The results obtained from this monitoring study will inform the baseline air quality assessment to be undertaken as part of the Reserved Matters Application for the proposed Development.
- 1.4. In addition, the results will be used to verify the air quality model (comparison of monitored and modelled concentrations and the use of an adjustment factor, should this be required) to predict future air pollutant concentrations at the Site, and the likely significant impacts of the proposed Development on air pollutant concentrations in the surrounding area.
- 1.5. NO₂ diffusion tubes were placed at five locations at and surrounding the Site as shown in **Figure A1**. The locations were chosen to obtain a good distribution across the Site. In addition, tubes were co-located at the automatic monitor at Holloway Road, operated by the London Borough of Islington (LBI) to allow bias-adjustment of the monitoring results (see overleaf for further details).

2. Methodology

- 2.1. In May 2016, Defra published Local Air Quality Management Technical Guidance (LAQM.TG(16))¹ an update to the LAQM. TG(09)². The methodology and results of this monitoring study accord with LAQM.TG(16).
- 2.2. The air quality monitoring study was undertaken for a six-month period from 11th March 2021 to the 13th September 2021 and consisted of deploying two NO₂ diffusion tubes at five locations as shown in **Figure A1**, and three tubes at the Holloway Road automatic monitor (Grid Reference 530698, 185735), which were changed monthly throughout the monitoring period.
- 2.3. This period is sufficient to provide a reasonable assessment of existing air quality in an area, but it does not provide data equivalent to the annual mean, which was estimated from the monitoring results.
- 2.4. The diffusion tubes were mounted on lampposts approximately two metres (m) above ground level on and around the Site.

Diffusion Tubes

- 2.5. Diffusion tube monitoring is a method for screening the air quality in an area in order to give an indication of average air pollutant concentrations. The method consists of a tube with an appropriate absorbent material at one end, mounted on to street furniture. The preparation method used is 20% TEA (triethanolamine) in water and the tubes are exposed by removing the bottom cap to allow sampling.
- 2.6. Following the relevant exposure period, the cap is replaced and the tube sent to a laboratory for analysis. For this study, the tubes were obtained from Gradko International Ltd (a UKAS Accredited laboratory) and, following exposure, were returned to Gradko for analysis.

Diffusion Tube Co-location

- 2.7. Diffusion tubes may systematically under or over-read NO₂ concentrations when compared to an automatic analyser. To improve accuracy, it is best practice to deploy duplicate / triplicate tubes specifically co-located with an automatic monitor to enable inter-comparison of monitored results and determine the 'bias' in diffusion tube results. This bias can then be corrected to improve the accuracy of the diffusion tube results, using a suitable bias-adjustment factor.
- 2.8. As part of the monitoring study, triplicate diffusion tubes were located at the LBI Holloway Road automatic monitor to derive a local bias adjustment factor. A locally derived bias adjustment factor is more appropriate than using a national factor available from Defra³ for the following reasons:
 - The survey has not been carried out over a calendar year (the national factors have been determined on a calendar year basis); and
 - NO₂ concentrations at all of the diffusion sites are significantly influenced by emissions from nearby roads. In accordance with existing diffusion tube guidance⁴, the bias adjustment factors should be determined from co-location studies at similar monitoring locations.

1 Defra, 2016, Local Air Quality Management Technical Guidance LAQM.(TG16)

2 Defra, 2009, Local Air Quality Management Technical Guidance LAQM.TG(09)

3 <http://laqm.defra.gov.uk/bias-adjustment-factors/national-bias.html>

4 Laxen and Marner for Defra, 2006. The relationship between diffusion tube bias and distance from the road.

- 2.9. The local bias spreadsheet tool, developed by Defra to help Local Authorities calculating precision, accuracy and bias adjustment factors, has been used to check the accuracy of the triplicate diffusion tubes with the Holloway Road automatic monitor.
- 2.10. The spreadsheet provides a Coefficient of Variation (CV) of the diffusion tube results, which represents their precision and is an indicator of the overall performance of the diffusion tubes. Tube precision is separated into two categories, 'good' or 'poor'. Tubes are considered to have 'good' precision where the coefficient of variation of duplicate or triplicate diffusion tubes for eight or more periods during the year is less than 20%, and the average CV of all monitoring periods is less than 10%. Tubes are considered to have 'poor' precision where the CV of four or more periods is greater than 20% and/or the average CV is greater than 10%.
- 2.11. A summary of the data from the co-location study is presented in **Table 1** and a copy of the precision and accuracy spreadsheet presented in **Appendix A**.

Table 1: Co-location Data at Holloway Road

Site	Diffusion Tubes		Automatic Monitor	Bias Adjustment
	Period Mean	Tube Mean CV (% Precision)	Period Mean	
Holloway Road	32	8	24	0.77

- 2.12. The average CV for the co-location is less than 10%, and as such shows 'good' precision, and therefore the adjustment factor of **0.77** been applied to the monitoring results.

3. Results

Assessment Methodology

- 3.1. As noted previously, the short-term sampling period is sufficient to provide a reasonable assessment of air quality in an area but cannot be compared directly to the NO₂ annual mean Air Quality Strategy objective. However, if long-term (yearly) data sets are available from nearby monitoring networks, it is possible to identify a correlation between short and long-term data sets and estimate annual means from short-term data sets using the correlation.
- 3.1. Following guidance in Defra's LAQM.TG(16) (Box 7.10), for sites with fewer than 9 months' worth of data, annual mean concentrations need to be estimated from other long-term monitoring locations, known as annualisation. The reason for annualisation is that the concentration varies throughout the year, and the diffusion tubes may have been operational for a period of above or below average concentrations.
- 3.2. To minimise the impact of local traffic, the monitoring locations used in annualisation should be distanced from sources of pollution and broadly representative of city-wide urban background conditions.
- 3.3. According to LAQM.TG(16), in order to derive an annual mean concentration for the Site; data from two to four nearby long-term monitoring sites, located at urban background locations and ideally forming part of the national network are required. It is estimated that the distance between sites should not be larger than 50 miles (80km).
- 3.4. There are several urban background automatic monitoring stations in central London, from which the following four urban background monitoring locations were selected:
 - Priory Park South – Haringey, approximately 1.2km from the Site;
 - Arsenal – Islington, approximately 3.8km from the Site;
 - Bloomsbury – Camden, approximately 7.8km from the Site; and
 - The Aldgate School – City of London, approximately 9.0km from the Site.
- 3.5. The above automatic monitors form part of the London Air Quality Network (LAQN) and monitoring data is available for all monitors for 2019.
- 3.6. The ratio of the short-term monitoring period mean for NO₂ (11th March 2021 to 13th September 2021) at the four sites to the latest NO₂ annual mean concentration (available for 2019) at the same site was obtained, as shown in **Table 2**.

Table 2: Adjustment Process to Estimate Annual Mean NO₂ Concentrations at the Site

Monitor	Annual Mean 2019 [AM] (µg/m ³)	Period Mean [PM] (µg/m ³)	Ratio (AM/PM) [R]
Priory Park South, Haringey	21.9	13.8	1.587
Arsenal, Islington	24.9	16.7	1.492
Bloomsbury, Camden	31.5	21.2	1.486
The Aldgate School, City of London	33.3	18.7	1.777
Average Ratio			1.586

- 3.7. The average of the four ratios between the sampling period and annual mean NO₂ concentrations was calculated as 1.586, as shown in **Table 2** and then applied to the short-term NO₂ diffusion tube results set out in **Table 3**. Following guidance in LAQM.TG(16), given that the calculation is carried

out using the ratio of the short-term monitoring period to the 2019 annual mean, the equivalent/estimated annual mean is for 2019.

- 3.8. The results of the monitoring for NO₂ are presented in **Table 3** with the overall six-month average for each location calculated and the equivalent/estimated bias adjusted annual mean using the factor calculated above.

Table 3: NO₂ Monitoring Results at the Site

NO ₂ Concentrations (µg/m ³)									
Location	11 th March – 13 th April 2021	13 th April – 12 th May 2021	12 th May – 11 th June 2021	11 th June – 12 th July 2021	12 th July- 11 th August 2021	11 th August – 13 th September 2021	Overall Average	Adjusted /Co- location Annual Mean*	Adjusted Estimated 2019 Annual Mean**
1. Alexandra Road	24.6	25.1	24.8	20.5	22.8	19.6	23.0	17.7	28.1
	25.0	25.0	24.8	20.7	22.4	20.7			
2. Clarendon Road	23.2	26.4	22.4	20.0	21.5	17.5	22.1	17.0	26.9
	24.3	25.3	22.8	19.0	21.5	21.1			
3. Ravenstone Road	24.1	25.4	23.3	21.5	23.0	22.5	23.2	17.9	28.4
	25.4	25.7	22.3	21.2	22.1	22.0			
4. Malvern Road	25.0	26.5	23.8	24.0	23.9	24.4	24.2	18.7	29.6
	26.7	27.0	23.5	22.6	22.0	21.6			
5. Mayes Road	31.4	35.7	29.9	27.9	30.3	26.3	30.2	23.3	36.9
	30.0	35.7	30.3	26.5	30.5	28.3			
6. Coburg Road	23.2	24.7	21.0	18.5	21.5	17.5	21.5	16.5	26.2
	22.9	24.5	21.4	20.2	20.4	21.6			
7. Brook Road	23.6	22.3	20.4	17.7	19.3	16.2	20.5	15.8	25.1
	23.8	24.0	20.6	18.0	18.9	21.6			
8. Western Road	22.1	23.9	22.3	18.8	19.0	16.2	20.9	16.1	25.5
	22.6	27.5	21.6	19.3	17.9	19.0			
Air Quality Objective									40

* Multiply previous column by 0.77

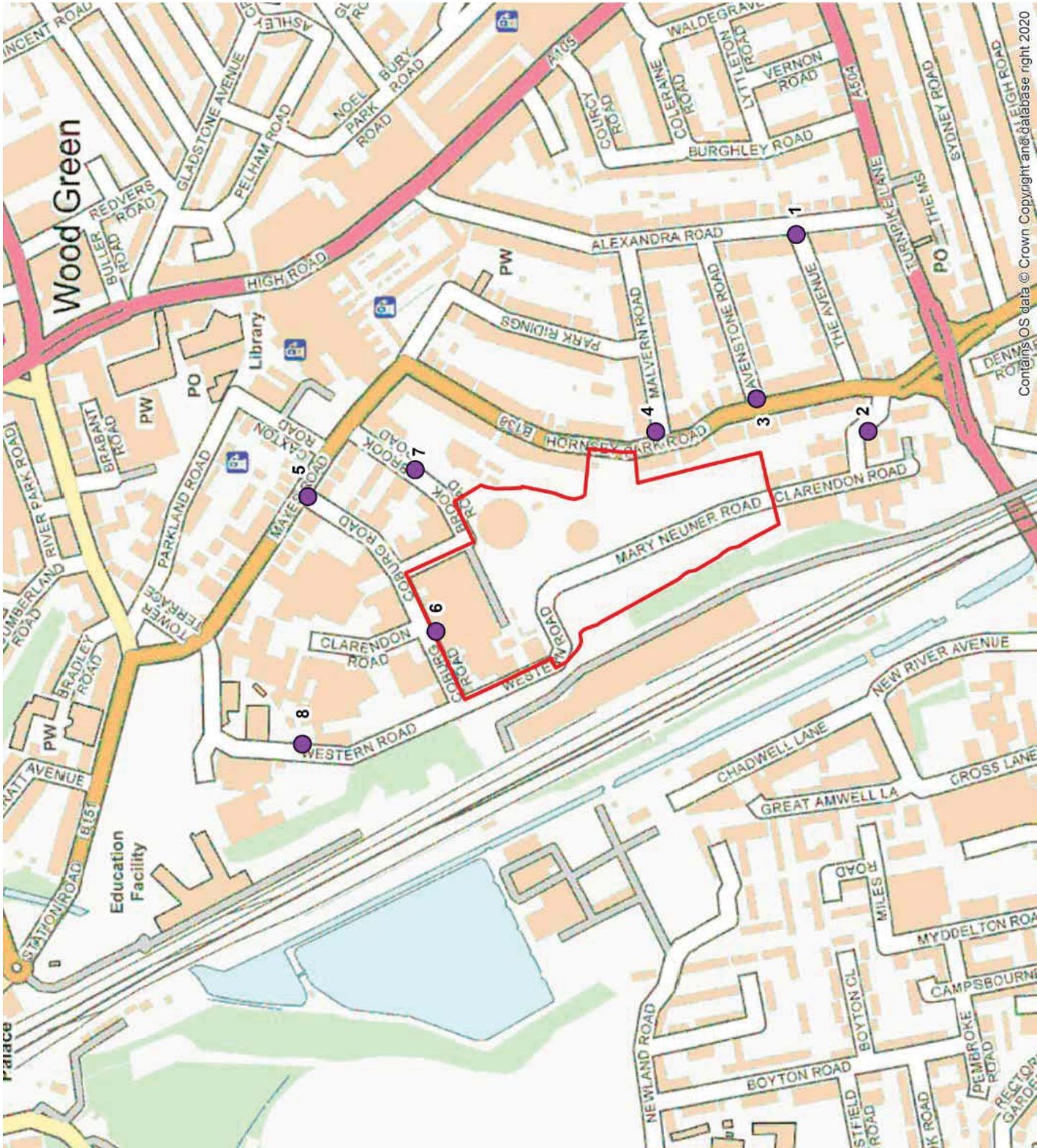
** Multiply previous column by 1.586

In bold, exceedence of the NO₂ annual mean AQS objective of 40µg/m³

- 3.9. As indicated by **Table 3**, the monitored estimated annual mean NO₂ concentrations did not exceed the annual mean objective at any of the monitoring locations. These concentrations indicate the greatest source of pollution at the Site is traffic on Mayes Road with a 2019 annual mean concentration estimated to be 36.9µg/m³.

FIGURE

Figure A1: Diffusion Tube Monitoring Locations



Project Details

Figure Title

Figure Ref

Date

File Location

WIE11636-109: Clarendon Square

Figure A1: Diffusion Tube Monitoring Locations

WIE11636-109_GR_AQ_A1A

November 2021

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APPENDICES

Appendix A Precision and Accuracy Spreadsheet

Checking Precision and Accuracy of Triplicate Tubes


AEA Energy & Environment
From the AEA group

Diffusion Tubes Measurements									
Period	Start Date dd/mm/yyyy	End Date dd/mm/yyyy	Tube 1 μgm^{-3}	Tube 2 μgm^{-3}	Tube 3 μgm^{-3}	Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of mean
1	11/03/2021	13/04/2021	32.7	39.8	31.9	35	4.3	12	10.7
2	13/04/2021	12/05/2021	32.7	31.6	27.1	30	3.0	10	7.4
3	12/05/2021	11/06/2021	33.5	33.2	34.6	34	0.8	2	1.9
4	11/06/2021	12/07/2021	27.2	30.1	32.8	30	2.8	9	6.9
5	12/07/2021	11/08/2021	34.2	33.7	30.7	33	1.9	6	4.6
6	11/08/2021	13/09/2021	27.5	28.8	33.6	30	3.2	11	8.0
7									
8									
9									
10									
11									
12									
13									

It is necessary to have results for at least two tubes in order to calculate the precision of the measurements

Period	Mean	Data Capture (% DC)
1	32.431982	97.9
2	25.96056	97.88
3	26.994	97.78
4	20.09938	97.78
5	21	97.78
6	20	97.44
7		
8		
9		
10		
11		
12		
13		

Tubes Precision Check	Automatic Monitor Data Capture
Good	Good
Good	Good
Good	Good
Good	Good
Good	Good
Good	Good

Site Name/ ID:

Accuracy (with 95% confidence interval) without periods with CV larger than 20%	
Bias calculated using 6 periods of data	
Bias factor A	0.77 (0.66 - 0.91)
Bias B	31% (10% - 51%)
Diffusion Tubes Mean:	32 μgm^{-3}
Mean CV (Precision):	8
Automatic Mean:	24 μgm^{-3}
Data Capture for periods used:	98%
Adjusted Tubes Mean:	25 (21 - 29) μgm^{-3}

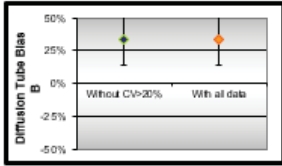
Precision **6 out of 6 periods have a CV smaller than 20%**

Accuracy (with 95% confidence interval) WITH ALL DATA	
Bias calculated using 6 periods of data	
Bias factor A	0.77 (0.66 - 0.91)
Bias B	31% (10% - 51%)
Diffusion Tubes Mean:	32 μgm^{-3}
Mean CV (Precision):	8
Automatic Mean:	24 μgm^{-3}
Data Capture for periods used:	98%
Adjusted Tubes Mean:	25 (21 - 29) μgm^{-3}

Overall survey →

Good precision	Good Overall DC
----------------	-----------------

(Check average CV & DC from Accuracy calculations)



Jaume Targa, for AEA
Version 04 - February 2011

If you have any enquiries about this spreadsheet please contact the LAQM Helpdesk at:

LAQMHelpdesk@uk.bureauveritas.com

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UK & Ireland Office Locations



Appendix D**Air Quality Positive Statement**

Appendix D: Air Quality Positive Statement

Introduction

This Air Quality Positive Statement has been prepared following the structure below, in line with the London Plan Guidance Air Quality Positive Consultation Draft¹:

- Introduction
- Constraints and opportunities
- Measures adopted
- Implementation and monitoring

Waterman Infrastructure & Environment Limited have been engaged throughout the design process to maximise the potential benefits for air quality as part of the planning application for the Phase 4 of the Proposed Development in the London Borough of Haringey (LBH).

The purpose of the statement is to demonstrate how the Development has considered ways to improve air quality and minimise exposure to existing sources of air pollution as part of an air quality approach, across all aspects of the development including the buildings, public spaces, landscaping and infrastructure.

An air quality assessment has been undertaken to determine baseline conditions at the Site, assess its suitability for the proposed land uses, and consider the effects of the Development given its location, size and nature in accordance with the requirements of the National Planning Policy Framework (NPPF)².

Proposed Development

Phase 4 of the Proposed Development comprises of Blocks H1 (proposed 26 storey tower), H2 (proposed 15 storeys) and H3 (proposed 20 storeys) which is connected by a 12 storey linking building around a public square.

Constraints

Construction

Dust Emissions

Potential air quality effects likely to arise because of the Development during the construction phase include:

- Temporary increases in dust deposition at sensitive receptors;
- Temporary increases in air pollutant concentrations near the local road network due to emissions from construction traffic; and
- Temporary increases in air pollutant concentrations near the Development due to emissions from non-road mobile machinery and plant.

During the construction phase, general construction activities and processes may cause dust and particulate matter to be emitted to the atmosphere, which could have an adverse impact on local

¹ Mayor of London, London Plan Guidance Air Quality Positive Consultation draft, November 2021

² Department for Communities and Local Government, 2021, 'National Planning Policy Framework'. DCLG, London.

air quality at nearby sensitive receptors unless suitable mitigation measures are applied. Through the implementation of mitigation measures during the construction phase, it is unlikely that the effect of dust and particulate matter generation and deposition will be significant.

Construction Vehicle Exhaust Emissions

Construction traffic associated with the proposals will contribute to existing traffic levels on the surrounding road network. The greatest potential for effects on air quality from traffic associated with this phase of the proposals will be in the areas immediately adjacent to the construction works and the route construction vehicles take to access the site. The atmospheric emissions from construction vehicles will primarily be NO₂ and PM₁₀.

Exhaust emissions from construction vehicles could have an impact on local air quality both on-site and adjacent to the routes used by these vehicles to access the construction sites. However, this is not considered to pose a constraint to Development given the fact that any change will be temporary.

Complete and Operational Development

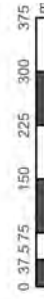
Impacts of Traffic Emissions on Local Air Quality

LBH has declared an Air Quality Management Area (AQMA) for annual mean NO₂ and 24-hour mean PM₁₀. The AQMA covers the entire borough. The Site is located within this AQMA.

The Greater London Authority has identified 187 Air Quality Focus Areas (AQFA) in London, these are locations that exceed the EU annual mean limit value for NO₂ and have high levels of human exposure. The Wood Green High Road and Turnpike Lane AQFA is located approximately 200m east of the Site

Figure D1 shows the location of the LBH AQMA and AQFA's in relation to the Site.

Potential Air Quality effects likely to arise once the Development is operational include increased NO₂, PM₁₀ and PM_{2.5} concentrations along local roads due to additional traffic movements and heating plant emissions generated by the Development.



Project Details	WIE11636-109; Clarendon Square
Figure Title	Figure D1: AQ Positive
Figure Ref	WIE11636-109_GIS_AQ_D1A
Date	December 2022
File Location	N:\Projects\WIE11636-109_GIS_AQ



Opportunities

There are opportunities to go beyond best practice with the use of mitigation measures at the Site.

Complete and Operational Development

There are opportunities to ensure the design is both Air Quality Neutral and Air Quality Positive by introducing measures such as:

- Sustainable Transport Plans: – a sustainable travel plan which will ensure that traffic generation is minimized, and the Development will provide excellent routes and connectivity for cycling and walking;
- Increasing site permeability;
- Provision of charging points for electric vehicles;
- Promotion of ultra-low and zero local emission local energy generation;
- Promotion of awareness of local air quality and actions that can be taken to reduce emissions;
- Green Infrastructure; and
- Sustainable Energy.

Measures Adopted

Details of adopted measures, including the rationale for adoption / non-adoption of measures and technical evaluations and assessments that have informed the measures adopted are provided within the matrix below in **Table D1**.

Table D1: Air Quality Positive Matrix

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment and reporting			How this measure will be secured
				Methods	Quantitative	Qualitative	
Better design and reducing exposure							
Best practice construction - dust	Best practice controls will be in place to mitigate demolition and construction dust.	Reducing exposure to existing residential receptors to construction phase dust.	Negligible effects from construction dust.	Dust assessment in the air quality assessment.	N	Y	Agreed through the CEMP
Best practice construction – emissions	The Site construction logistics will be designed to reduce exposure for existing residents nearby and to reduce exposure for the workforce. Non-Road Mobile Machinery (NRM) will meet and where possible exceed the GLA requirements. Euro IV HGVs will be used.	Reducing emissions from the construction phase.	Reduced emissions from the construction phase.	Reported via commitment from contractors.	N	Y	Agreed through the CEMP
Building Design	The Development has been designed with few residential elements located on the ground floor to keep future residents away from the main sources of road pollution. Additionally, when residential receptors are on the ground floor, they are distanced from road sources.	Reducing NO ₂ , PM ₁₀ and PM _{2.5} exposure to residents.	Reduced exposure from poor air quality.	Air quality assessment, detailed dispersion modelling.	Y	N	Secured through approved plans.

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment and reporting			How this measure will be secured
				Methods	Quantitative	Qualitative	
Non-toxic building materials	Non-toxic building materials to be used during construction and refit. To protect internal air quality, developers should specify environmentally sensitive (non-toxic) building materials and the use of materials or products that produce VOC (volatile organic compounds) and formaldehyde which can affect human health should be avoided.	The use of 'healthy' material options can contribute towards attaining the BREEAM/Code for Sustainable Homes credits, but a clear audit trail will need to be provided to gain these credits.	Protect health of residents.	BREEAM assessment.	Y	N	Secured through approved plans and condition.
Landscape Strategy	Green infrastructure incorporated into design of the Development.	In line with the Sustainable Design and Construction SPG.	Green infrastructure provides a comparatively large surface area for pollutant dispersion, with the rough surface of different heights increasing mixing and pollution dispersal. Hedges will form a barrier to street-level air pollution. Buffer planting will form a barrier between street-level air pollution. Urban greening has been identified as a measure to help adapt London to future climates. Green infrastructure can have numerous benefits including: urban cooling, through shading and evapotranspiration; reduced runoff, through the absorption of rainfall;	Landscape assessment.	N	Y	Secured through approved plans.

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment and reporting			How this measure will be secured
				Methods	Quantitative	Qualitative	
reduced energy demand, through insulation of the property; improved air quality; improved biodiversity; enhanced amenity and visual interest, including in neighbourhoods and high streets and helping to create a sense of place; better quality of life for residents and workers; and for health and well-being, including tackling obesity and mental health by offering pleasant opportunities for exercise.							
Building Emissions							
Energy Strategy	The heat demand for the scheme would be partly through connection to the district heat network.	The Energy Strategy sets out the rationale for the measure and quantifies the impact on NO _x emissions.	The selected option will meet the carbon emission targets.	Energy Strategy	N	Y	Secured through approved plans and by condition.
Transport emissions							
Low-emission construction plant and construction vehicles	Use of low-emission construction plant and construction vehicles during the construction phase.	In line with the Dust and Emissions, and Sustainable Design and Construction SPGs.	Reduced contribution of emissions to background pollution and pollution hotspots.	Transport Assessment	N	Y	Secured through approved plans.
				Air Quality Assessment	N	Y	Subject to S106 agreement.

Measure	Summary of the measure	Reason for undertaking measure	Expected benefits	Assessment and reporting			How this measure will be secured
				Methods	Quantitative	Qualitative	
EV charging points	Electric vehicle charging points (EVCP) will meet London Plan standards.	To reduce transport related NO ₂ , PM ₁₀ and PM _{2.5} emissions once the Development is operational.	Reduced contribution of emissions to background pollution and pollution hotspots.	Transport Assessment/ Travel Plan	N	Y	Secured through part condition / part section 106 agreement.
Cycle Parking	Cycle parking will meet London Plan standards.	To encourage active travel and reduce transport-related emissions	Reduced contribution of emissions to background pollution and pollution hotspots.	Transport Assessment/ Travel Plan	N	Y	Secured through part condition / part section 106 agreement.
Innovation and Futureproofing							
Future Resilience	Ensure that the buildings and spaces built today are suitable for occupation and use for their anticipated lifetime.	In line with the Sustainable Design and Construction SPG.	Developments last their anticipated lifetime.	Design and Access Statement	N	Y	Secured through approved plans.

Implementation and Monitoring

The Air Quality Positive Measures detailed within the above matrix will be secured as part of the planning applications and implemented via part condition and part Section 106 agreements.

Table D2 details the implementation plan. To secure and implement these measures consultation with the following will be required:

- the Local Planning Authority (LPA);
- Greater London Authority (GLA);
- Transport for London (TfL); and
- Other key stakeholders.

Table D2: Implementation Plan

Air Quality Positive Measures	How will the measure be secured?	Method of reporting	Monitoring
Better design and reducing exposure			
Best practice construction -dust	Through Planning	CEMP and dust management plans.	On-site updates and information on local air quality monitoring where necessary to be provided to the local authority.
Best practice construction – emissions	Through Planning	CEMP	On-site updates and information on local air quality monitoring where necessary to be provided to the local authority.
Building Design	Through Planning	Detailed design plans	None required
Non-toxic building materials	Through Planning	BREEAM	
Building Emissions			
Energy Strategy	Detailed design plans	None required	Energy Strategy
Transport emissions			
Low-emission construction plant and construction vehicles	Planning Condition	CEMP	None required
EV charging points	Planning Condition	Transport Assessment / Travel Plan	None required
Cycle Parking	Planning Condition	Transport Assessment / Travel Plan	None required
Innovation and Futureproofing			
Future Resilience	Through Planning	DAS	None required

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APPENDIX 1.5: TECHNICAL DAYLIGHT, SUNLIGHT AND OVERSHADOWING NOTE, DATED AUGUST 2023

Re: (D&S7465) Clarendon Gasworks (Ref: HGY/2017/3117) – Daylight, Sunlight And Overshadowing Technical Note

This Daylight, Sunlight and Overshadowing Technical Note has been prepared by Anstey Horne on behalf of St William Homes LLP (the 'Applicant'). The FIR accompanies the submission of a fourth Reserved Matters Application (RMA) pursuant to hybrid planning permission Ref. HGY/2017/3117 dated 19th April 2018 for redevelopment of Clarendon Gas Works, Wood Green. The planning permission for the redevelopment of Clarendon Gas Works is hereafter referred to as the 'Consented Scheme'.

Since the approval of the initial Consented Scheme, the Applicant has submitted a number of Reserve Matter Applications (RMAs). The current RMA seeks the approval of the detailed permission for Blocks H1-H3 (the 'Blocks H1-H3 RMA'). Anstey Horne has been retained to review the potential impacts to the neighbouring properties in the context of the Blocks H1-H3 RMA.

Anstey Horne have reviewed the Blocks H1-H3 RMA and carried out an assessment to a number of the neighbouring properties in closest proximity to the Blocks H1-H3 RMA. This assessment was undertaken with the following conditions for the analysis:

- Baseline condition: Existing buildings on the baseline
- Proposed condition: The 2017 Detailed Component massing on the southern quarter, the outline massing on the northern quarter and the Blocks H1-H3 RMA massing replacing the outline H block massing¹

The assessment was run as outlined above in order to enable a comparison to be drawn between the assessment included within the 2017 ES in respect of the impact on the neighbouring properties. The sample assessment considered alternate properties along Hornsey Park Road.

The assessment confirmed that including the Blocks H1-H3 RMA block massing instead of the Maximum Parameter Plan massing does not materially affect the daylight and sunlight impacts to the neighbouring properties. For the most part, the reductions identified are as previously reported in the 2017 ES for the Illustrative Scheme. The comparison of the results shows minor fluctuations in the proposed light levels and factor of former values, however, the results for the neighbouring properties are marginally better with the Blocks H1-H3 RMA block massing.

¹ It is worth noting that the assessment was run with an earlier version of the Blocks H1-H3 RMA massing. However, the changes between that massing and the final application scheme are minor and therefore further assessment is not considered necessary.





Overall, the assessment results found that the impact of the Blocks H1-H3 RMA block massing will not have a greater impact on the neighbouring properties or the surrounding blocks than was reported for the 2017 ES. Anstey Horne can therefore confirm that the range of effects on daylight and sunlight to neighbouring properties remain unchanged from that presented within the 2017 ES.

We trust the above provides a useful summary of the position.

Yours sincerely

A handwritten signature in black ink that reads 'Anstey Horne' in a cursive style.

.....
Anstey Horne

25 August 2023

APPENDIX 1.6: WIND MICROCLIMATE ASSESSMENT, DATED JUNE 2023



Clarendon Gas Works Phase 4

Wind Microclimate

June 2023

Prepared For:

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Executive Summary

In accordance with best practice, wind tunnel testing of a physical scale model has been combined with long-term wind statistics applicable to the site, to provide a detailed assessment of pedestrian level wind conditions in and around the site, based on the industry standard Lawson criteria for pedestrian safety and comfort.

Subsequent to completing the wind tunnel tests, minor amendments have been applied to the development. These amendments have been reviewed based on professional judgement and sensitivity checks of the results, and are accounted for in the current report.

The proposed development is substantially sheltered from prevailing south-westerly and westerly winds at lower levels and, although taller than the outline consent, presents a relatively narrow obstruction to these winds at upper levels.

As a result, the proposed development has no significant impact on wind conditions with regards to pedestrian safety.

In terms of pedestrian comfort, with respect to wind force, thoroughfares within and alongside the site are suitable for pedestrian access to, and passage through or past, the proposed development.

All entrances to the proposed development are expected to enjoy suitable conditions for pedestrian ingress / egress.

Bus stops along Silsoe Road enjoy suitable conditions for awaiting a bus.

Recreational spaces generally enjoy suitable conditions for planned activities, including outdoor seating along much of the building frontages around the public square, though the Block H2 / H3 roof-top terraces would likely benefit from further landscaping measures to maximise the potential for outdoor seating.

The proposed development has no significant adverse impact on the pedestrian level wind conditions within the surrounding area and, in conjunction with Phase 5, is expected to enhance conditions within Phase 3's ground and podium level amenity spaces.

No significant cumulative effects with the future surrounding developments are expected.

On the basis of the above, the proposed development is considered compliant with the assumptions and conclusions of the 2017 ES for the consented outline scheme.

1. Introduction

Urban Microclimate Ltd. has been commissioned by St William Homes LLP to assess the potential impact of the proposed detailed design for Phase 4 of the Clarendon Gas Works development, in London Borough of Haringey, on the pedestrian level wind environment in and around the site.

The assessment is primarily based on boundary layer wind tunnel testing of a physical scale model, based on details of the proposed development issued by the design team, from November to December 2022. This approach represents best industry practice, and provides a detailed, robust, quantitative assessment. Subsequent to completing the wind tunnel tests, minor amendments have been applied to the development. These amendments have been reviewed based on professional judgement and sensitivity checks of the wind tunnel results.

The Phase 4 site benefits from an extant outline consent (application reference HGY/2017/3117, amended by HGY/2021/1392). Relative to the illustrative scheme tested for the 2017 Environmental Statement, the detailed design is increased in height and the buildings are separated by a new passage.

The detailed design for Phase 4, as tested, comprised two rectangular buildings. At 27 storeys, Block H1 is the tallest and sits in the northwest of the Phase 4 site. Block H2 / H3 is located along the east side of the site and comprises two main blocks, with a lower connecting block between, all sitting on top of a 2-storey podium. Communal roof-top terraces are included at Level 10 of Block H1 and Levels 02 and 12 of Block H2 / H3. A public landscaped square is also located in the southwest of the site.

The scheme considered for the wind tunnel studies is illustrated in Figures 1.1, below.

Figure 1.1a: Proposed Development (Viewed, in Isolation, from Southwest)



Figure 1.1b: Proposed Development (Viewed, in Isolation, from Northeast)



Figure 1.1c: Proposed Siteplan and Landscaping Scheme

2. Methodology and Criteria

2.1. Policy and Guidelines

National Planning Policy and Guidelines

There are no national planning policies directly relating to wind microclimate issues. However, the National Planning Policy Framework (updated in July 2021) emphasises the benefits of a high-quality built environment. An example of this is presented in Section 12, which states that developments should:

“establish or maintain a strong sense of place, using the arrangement of streets, spaces, building types and materials to create attractive, welcoming and distinctive places to live, work and visit”

The National Design Guide (October 2019) forms part of the associated planning practice guidance. Within this guide, the section Built Form B2 ‘Appropriate building types and forms’ states that:

“Proposals for tall buildings (and other buildings with a significantly larger scale or bulk than their surroundings) require special consideration. This includes their location and siting; relationship to context; impact on local character, views and sight lines; composition - how they meet the ground and the sky; and environmental impacts, such as sunlight, daylight, overshadowing and wind. These need to be resolved satisfactorily in relation to the context and local character.”

The section Context C1 ‘Understand and relate well to the site, its local and wider context’ goes on to state:

“Well-designed new development responds positively to the features of the site itself and the surrounding context beyond the site boundary. It enhances positive qualities and improves negative ones. Some features are physical, including:

- *environment – including landscape and visual impact, microclimate...”.*

Regional Planning Policy

The London Plan ‘The Spatial Development Strategy for Greater London’ (March 2021), includes several references to wind microclimate. These include Policy D3 Optimising Site Capacity Through the Design-led Approach, which states that:

“Buildings should be of high quality and enhance, activate and appropriately frame the public realm. Their massing, scale and layout should help make public spaces coherent and should complement the existing streetscape and surrounding area. Particular attention should be paid to the design of the parts of a building or public realm that people most frequently see or interact with in terms of its legibility, use, detailing, materials and location of

entrances. Creating a comfortable pedestrian environment with regard to levels of sunlight, shade, wind, and shelter from precipitation is important.”

Policy D8 Public Realm goes on to state that development plans and development proposals should:

“ensure buildings are of a design that activates and defines the public realm, and provides natural surveillance. Consideration should also be given to the local microclimate created by buildings, and the impact of service entrances and facades on the public realm”

and

“ensure that appropriate shade, shelter, seating and, where possible, areas of direct sunlight are provided, with other microclimatic considerations, including temperature and wind, taken into account in order to encourage people to spend time in a place”

Finally, Policy D9 Tall Buildings states that development proposals should address the following impacts (under environmental impact):

“wind, daylight, sunlight penetration and temperature conditions around the building(s) and neighbourhood must be carefully considered and not compromise comfort and the enjoyment of open spaces, including water spaces, around the building”

Local Planning Policy

London Borough of Haringey (LBH)’s development plan currently comprises the London Plan, LBH’s Strategic Policies (consolidated with alterations since 2017), the Development Management DPD (adopted July 2017) and the Site Allocations DPD (adopted July 2017). Of these, only the Development Management DPD includes references to wind microclimate.

Policy DM1: Delivering High Quality Design considers Privacy and amenity, and states:

“D Development proposals must ensure a high standard of privacy and amenity for the development’s users and neighbours. The Council will support proposals that:...

c) Address issues of vibration, noise, fumes, odour, light pollution and microclimatic conditions likely to arise from the use and activities of the development.”

Policy DM6: Building Heights goes on to state that:

“...proposals for tall buildings should also:...

b) Consider the impact on ecology and microclimate.”

Additional Standards and Guidance

The assessment of environmental wind flows also lies outside the scope of BS EN 1991-1-4:2005, the current European Standard for wind actions on structures, which focuses on wind loading issues.

The impact of environmental wind on pedestrian spaces and the consequent suitability of these spaces for planned usage are described by and compared against the industry standard Lawson criteria, which are recognised by Local Authorities as a suitable benchmark for wind assessments.

2.2. Assessment Methodology

In accordance with the above policies and guidelines, a detailed wind microclimate assessment has been undertaken. The assessment combines the following elements to determine the probability of local wind speeds exceeding thresholds that relate to pedestrian safety and to comfort levels perceived during standard pedestrian activities, based on the Lawson criteria for pedestrian comfort and safety:

- Measured pedestrian level wind speeds at key areas in and around the site, from model-scale boundary layer wind tunnel testing; with
- Long-term wind frequency statistics transposed from the nearest suitable weather centres to apply directly at the site.

Wind Tunnel Tests

Details of the wind tunnel testing are provided at Appendix A. The tests were conducted, via Imperial Consultants, in Imperial College London's boundary layer wind tunnel facility, where an atmospheric boundary layer representative of that at the site was simulated. The wind tunnel model was constructed at a scale of 1:300 and covers a full-scale extent of 360 m from the south corner of the Phase 4 site (up to and beyond the extent of potential significant effects of the proposed development).

The development was modelled based on details, including a 3D CAD model, provided by the design team from November to December 2022. The surrounding existing and consented buildings were represented to a sufficient level of detail to reproduce the wind flows at the site and on surrounding land. Proposed semi-mature and existing mature trees were modelled in winter, or bare, format.

Wind tunnel tests were carried out for the following configurations:

- Baseline conditions;
- Proposed development with interim surrounds; and
- Proposed development with consented future surrounds.

These configurations are illustrated graphically in Appendix A.

The baseline conditions considered comprises cleared sites on the Phase 4 and Phase 5 plots, with Phases 1 to 3 in their completed forms.

Upon completion of the Phase 4 development, Phase 5 is expected to have undergone significant above-ground construction works. Phase 5 is therefore included, in its completed form, as part of the interim surrounding context, based on the illustrative scheme for the outline application.

Consented future surrounding developments considered comprise the Chocolate Factory (application references HGY/2017/3020 and HGY/2021/0624), to the northwest of the site, and the Iceland Site (application reference HGY/2017/2886) to the east of the site.

Preliminary Computational Fluid Dynamics (CFD) simulations were carried out to support the design development and this was applied in conjunction with an experience-based review to identify areas of potential accelerated winds in and around the site and to identify the potential extent of likely significant wind effects within the surrounding area. Existing and proposed pedestrian activities were also reviewed to identify areas of increased sensitivity to wind effects, such as recreational areas and building entrances. Wind speed measurements were then taken at the 111 pedestrian level locations and 12 podium-top and roof-top terrace locations identified. Details of the measurement locations and the assumed uses are included in Appendix A.

Measurements were taken at a height corresponding to 1.5 metres at full scale, for a full range of wind directions in increments of 22.5°. These increments are commonly applied and is considered sufficient to provide a robust and appropriate assessment, whilst helping optimise the testing efficiencies. To fully meet the requirements of the Lawson criteria, recordings were taken for a sufficient length of time to determine the mean and gust wind speeds.

Wind Climate Data

A Weibull distribution was applied to long-term wind frequency statistics from Heathrow and London City Airports, with annual and seasonal data derived for 16 evenly spaced sectors. The Weibull parameters were corrected to open-country terrain at sea-level, combined and then corrected to apply directly at the site, taking account of differences in upwind terrain and altitude between the weather centre and the site based on the widely-accepted Deaves and Harris log law wind model of the atmospheric boundary layer and BS EN 1991-1-4:2005. Historical data is used as standard practice due, in part, to lack of certainty in potential future changes in wind patterns, though any changes are expected to be minor.

Assessment Criteria

Details of the Lawson criteria for pedestrian safety, or distress, are presented in Table 2.1 and are based on the exceedance of the threshold wind speeds, considering mean-hourly and gust-equivalent-mean values, occurring once per annum. These thresholds represent

wind speeds with the potential to destabilise the less able or more susceptible members of the public (including elderly, cyclists and children) and able-bodied users.

Table 2.1: Lawson Criteria for Pedestrian Safety or Distress

Threshold mean-hourly wind speed exceeded once a year	Safety Rating		Qualifying Comments
15 m/s	S2	Unsuitable for general public	Less able and cyclists find conditions physically difficult.
20 m/s	S1	Unsuitable for able-bodied	Able-bodied persons find conditions difficult. Physically impossible to remain standing during gusts.

Details of the Lawson criteria for pedestrian comfort are presented in Table 2.2 and are based on the exceedance of threshold wind speeds, considering mean-hourly and gust-equivalent-mean values, occurring less than 5% of the time. The thresholds represent upper bounds of acceptability for a range of common activities. The value of 5% has been established as giving a reasonable allowance for extreme and relatively infrequent winds that are acceptable within each category.

Table 2.2: Lawson Criteria for Pedestrian Comfort

Threshold Mean-hourly Wind Speed Exceeded < 5% of the Time	Comfort Rating / Activity		Qualifying Comments
4m/s	C4	Long-term Sitting	Reading a newspaper and eating and drinking.
6m/s	C3	Standing or short-term Sitting	Appropriate for bus stops, window shopping and building entrances.
8m/s	C2	Walking and Strolling	General areas of walking and sightseeing.
10m/s	C1	Business walking	Local areas around tall buildings where people are not likely to linger.

The pedestrian level wind environment assessment is summarised in terms of suitability for various activities, based on the Lawson criteria described above. The assessment takes full account of seasonal variations in wind conditions and pedestrian activities. Thus, conditions for recreational activities focus on summer, but also consider spring and autumn.

Recreational activities do not consider winter comfort ratings as it is anticipated that users would not demand suitable conditions 95% of the time in winter but would instead be satisfied to use the amenity spaces on occasions when conditions, including precipitation and temperature, permit. Conditions for pedestrian thoroughfare, access or waiting (for example at bus stops) consider all seasons, with winter being predominantly the critical season due to generally higher wind speeds in the winter months.

The activities considered, and their relation to the comfort criteria detailed above, are shown in Table 2.3. The table is ordered in terms of decreasing sensitivity to wind speeds. Conditions considered suitable for the more sensitive activities would also be suitable for the subsequent, less sensitive, uses.

Table 2.3: Suitability Assessment

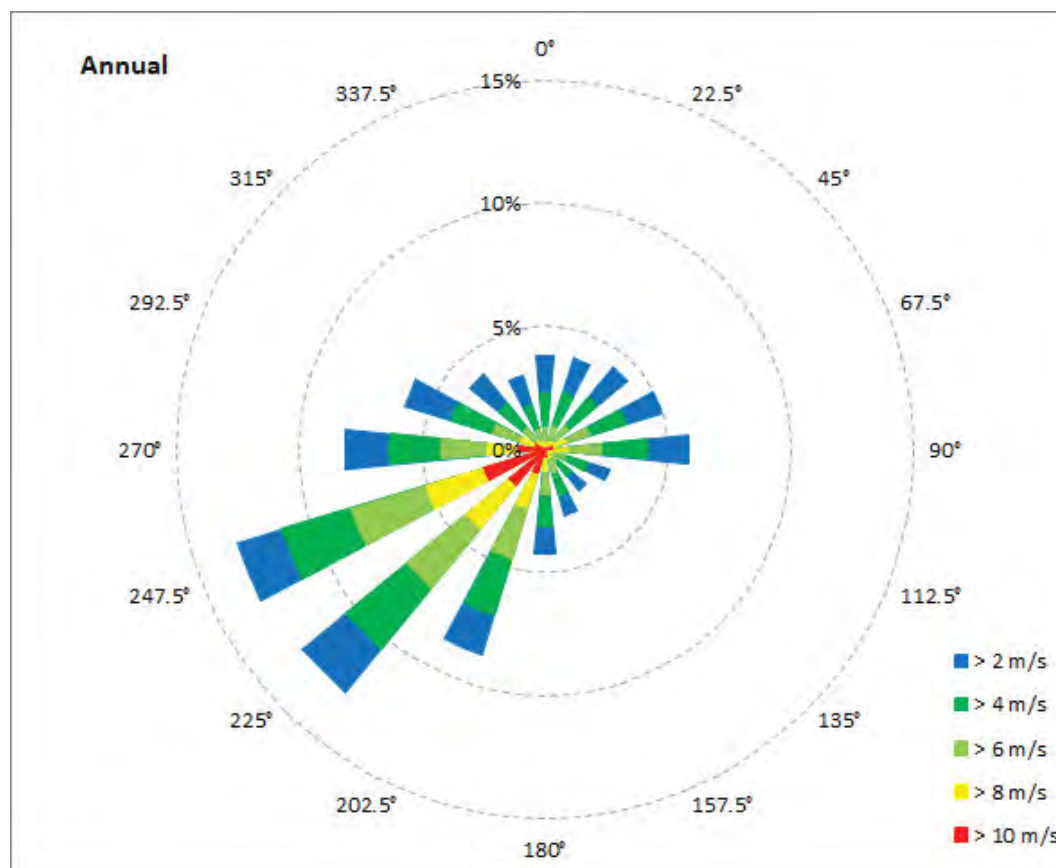
Suitability		Target Lawson comfort and safety criteria for specified seasons
Outdoor seating	For long periods of sitting, such as for an outdoor café or picnic area.	'Long-term sitting' (C4) in at least summer.
Entrances, waiting areas	For pedestrian ingress / egress at entrances, or short periods of sitting or standing such as at a bus stop, taxi rank, meeting point, window shopping, etc.	'Standing or short-term sitting' (C3) in all seasons.
General leisure (excluding seating areas)	For leisure uses excluding long periods of outdoor sitting, such as active leisure, general park spaces, children's play area, etc.	'Standing or short-term sitting' (C3) from spring to autumn.
Thoroughfare	For pedestrian access to, and passage through, the Site and surrounding area.	'Business walking' / 'Walking or strolling' (C1/C2) in all seasons - 'Walking or strolling' (C2) desired but 'Business walking' (C1) may be acceptable in some areas.
Unsuitable	Unsuitable for all activities.	Exceeds comfort criterion for 'Business walking' (C1) or safety criteria (S1/S2).

3. Assessment

3.1. Baseline Conditions

The wind climate expected at the site is summarised in Figure 3.1 in terms of the annual wind speed and direction probability distributions at a reference height of 86 m, corresponding to the approximate maximum roof height of the proposed development, relative to local ground level. Seasonal wind speed and direction probability distributions are presented in Appendix A.

Figure 3.1: Wind Climate at Site (at reference height of 86 m)



From the wind climate statistics, the prevailing winds at the site blow from the south-westerly sector. Wind speeds are generally highest during winter, when the most frequent strong winds blow from the west-south-west. Wind speeds are generally lower during summer. North-easterly winds are common during spring but, although potentially cold, these winds are generally light. South-easterly winds are generally light, rarely occurring and usually do not cause adverse impacts on pedestrian level conditions.

The baseline considered for the Phase 4 site comprises a cleared area of hardstanding. Baseline conditions are therefore dictated by the surrounding buildings, including Blocks D and E (Phase 3) of the Clarendon Gas Works development, and the railway embankment to the west of the site.

The resulting pedestrian level wind conditions at each measurement location in and around the site is presented in terms of the Lawson comfort and safety criteria in Appendix A.

Baseline conditions in and around the site rate as safe for all users, in accordance with the Lawson criteria for pedestrian safety.

In terms of pedestrian comfort, conditions are considered suitable for at least leisurely strolling on surrounding thoroughfares, and entrances to the surrounding buildings are expected to generally enjoy suitable conditions for pedestrian ingress / egress.

Within the neighbouring Phase 3 development, the Brook Road Courtyard (between Blocks D and E) and Block E's podium-top courtyard both enjoy suitable conditions for recreational activities including at least short periods of sitting and standing throughout the year. These conditions are considered suitable for uses such as children's play spaces or a meeting point for example. More sheltered areas are further suitable for long periods of outdoor sitting, such as for picnics, during at least summer. This mix of conditions is generally considered acceptable for such large amenity spaces. The potential café spill-out seating area near the northwest corner of Block E enjoys suitable conditions for long periods of outdoor sitting, such as for café seating, from spring through to autumn.

On the basis of the above, baseline conditions are considered suitable for associated uses.

3.2. Impact of Proposed Development (as Tested December 2022)

The 2017 ES demonstrated that the stepped massing and density of the Clarendon Gas Works development, in conjunction with the existing railway embankment and warehouse to the west, encourages prevailing south-westerly winds to pass up and over the masterplan development.

The proposed detailed design for Phase 4 is taller than the illustrative scheme tested for the 2017 ES and protrudes significantly above the wider masterplan, such that the upper levels are exposed to prevailing south-westerly and westerly winds. However, whilst orientated to present its widest elevation directly towards the most frequent strong winds (from the west-south-west), the tallest component of Block H1 is relatively slender. This limits the potential for downdraughts, for prevailing winds, though some downdraughts are expected to reach pedestrian level before channelling along the western elevation of Block H1 and around the northwest and southwest corners of the building. The roof-top terraces are also susceptible to prevailing south-westerly and westerly winds channelling around the upper levels of Block H1 and between the upper levels of Blocks H2 and H3.

The proposed development is more exposed to north-westerly winds and downdraughts from the northern elevations of Blocks H1 and H2 have potential to reach pedestrian level before accelerating around the northeast corners of each building. However, these winds are less frequent and are generally lighter than prevailing south-westerly winds, limiting the significance of the resulting accelerated pedestrian level winds.

The proposed development is similarly exposed to north-easterly winds. However, although relatively common in spring, and often cold, these winds are generally significantly lighter than prevailing south-westerly winds.

These potential effects were identified during the design process and the design was developed to respond to the effects. Mitigation measures were then further developed during an interactive workshop in the wind tunnel to refine the landscaping and localised building design features, responding to the potential wind effects and the proposed pedestrian and occupant activities. The primary resultant design measures (embedded mitigation) include:

At ground level:

- Semi-mature trees, ranging in heights from ~4½ m to ~6 m, of a deciduous species with substantial retained solidity in winter (i.e. significant canopies with numerous branches), distributed across the public square and along the pedestrian routes within the site.

At roof-top terrace levels:

- ~3 m high, deciduous, multi-stem trees distributed across each terrace;
- ~1.5 m high hedging or tall shrubs:
 - across the western and eastern sides of the H1 terrace;
 - across the centre of the H1 terrace;
 - across the western side of the upper H2 / H3 terrace;
- 2.0 m high, 50% porous, screens (e.g. mesh with climbing plants):
 - across the western and eastern sides of the H1 terrace;
 - across the western side of the upper H2 / H3 terrace;
- 1.5 m high, 50% porous, screens separating the private and communal spaces at the western corners of the lower H2 / H3 terrace; and
- 1.2 m solid balustrade around the perimeter of the H1 terrace.

These features, as modelled, are illustrated in Appendix A.

The resulting pedestrian level wind environment in and around the site, for the tested scheme, is presented in terms of the Lawson comfort and safety criteria in Appendix A and is further summarised graphically in Figure 3.2 in terms of suitability for pedestrian activities, based on the seasonal targets outlined in Table 2.3. This presentation applies expert judgement to extrapolate from the key-point measurements in order to cover the site and surrounding area. The potential impact of the minor amendments applied subsequent to the wind tunnel tests is discussed in Section 3.3.

Pedestrian Safety

As discussed above, the proposed development is substantially sheltered from prevailing south-westerly and westerly winds at lower levels and presents a relatively narrow

obstruction to these winds at upper levels. As a result, pedestrian level wind conditions in and around the site remain rated as safe for all users.

The proposed development is thus considered to have no significant impact with respect to pedestrian safety.

Pedestrian Comfort

In terms of pedestrian comfort, with respect to wind force, wind conditions within and immediately around the site are suitable for at least leisurely strolling. Conditions are therefore considered suitable for pedestrian access to, and passage through or past, the development.

All main entrances to the proposed development are set back into deep corner recesses or located in areas away from potential accelerated winds and enjoy suitable conditions for pedestrian ingress / egress.

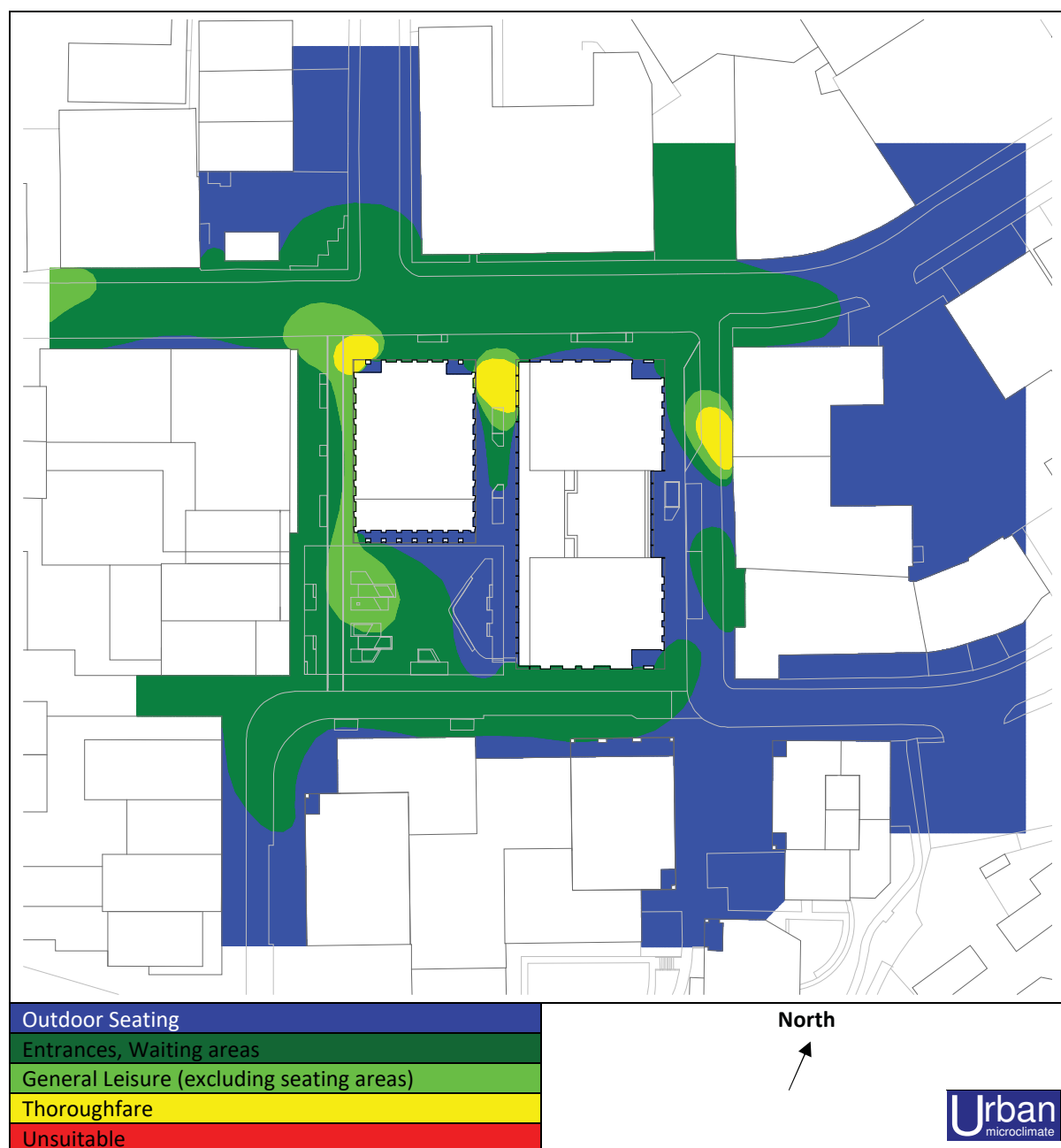
Conditions along the western elevation of Block H1 are marginally windy for comfortable pedestrian ingress / egress during winter for any exposed entrances. The cycle store entrance on this elevation has therefore been recessed. The recess is gated (for security reasons), such that users will still need to linger momentarily when entering. However, the recess provides a buffer zone for people exiting from the internal space and, given the marginal exceedance of the standing criteria (in winter only), conditions are expected to be considered acceptable for a secondary entrance.

Bus stops along Silsoe Road, on the east side of the site, enjoy suitable conditions for short periods of standing or sitting, such as for awaiting a bus, throughout the year.

The public square is suitable for at least general recreational activities, such as children's play, from spring through to autumn, with a majority of the benches also enjoying these conditions during winter, such that conditions at the benches are generally suitable for a meeting point. Away from the immediate vicinity of Block H1's south-western corner, the building frontages are further suitable for long periods of outdoor sitting, such as for café seating, during at least summer and autumn. Overall, this mix of conditions is expected to be considered acceptable.

The proposed development has no significant adverse effect on the suitability of wind conditions within the surrounding area. Surrounding thoroughfares remain suitable for at least leisurely strolling and entrances to surrounding buildings generally remain suitable for pedestrian ingress / egress.

Conditions within the neighbouring Phase 3 development are enhanced with the introduction of Phase 4 (and Phase 5), such that suitable conditions for outdoor seating are expected to be enjoyed throughout the year across the Brook Road Courtyard (between Blocks D and E) and Block E's podium-top courtyard, as well as at the potential spill-out café seating near the northwest corner of Block E.

Figure 3.2: Suitability Assessment

Roof-Top Terrace

With the landscaping and embedded mitigation implemented, the Block H1 roof-top terrace enjoys amenable conditions for recreational activities including long period of outdoor sitting, such as for picnics for example, from spring through to autumn.

Both Block H2 / H3 terraces also enjoy amenable conditions for outdoor seating in their northern and southern areas, towards the building frontages. The central areas are more susceptible to prevailing south-westerly winds channelling between the upper levels but remain suitable for general recreational activities, such as children's play, from spring through to autumn. Overall, these conditions are expected to be considered acceptable to

no worse than tolerable, though further localised shelter of bench seating in the central areas may be beneficial.

3.3. Potential Effects of Amendments to Proposed Development (June 2023)

Relative to the scheme tested in December 2022, the slight shift in location of the proposed buildings is not expected to materially affect the suitability of pedestrian level wind conditions for existing and proposed activities.

The increase in heights of Block H2 and the connecting block between H2 and H3 (by two storeys) does have potential to slightly exacerbate the channelling of pedestrian level wind around and between the buildings.

For the width and heights of Blocks H1 and H2, the slight increase in the spacing between the buildings would have potential to exacerbate funnelling effects (with the narrower gaps encouraging winds to pass around, rather than between the buildings). However, the layout and orientation of the buildings, with Block H3 extending to the south, is such that this potentially effect would likely be limited to north-westerly winds, which are less common and generally lighter than prevailing south-westerly winds.

Sensitivity checks carried out on the wind tunnel results indicate that the increase in pedestrian level wind speeds required to have a material effect on the suitability of conditions is significantly larger than would typically be expected to result from both a two-storey increase in building heights and a slight increase in the passage width. On this basis, the amendments to the massing and location of the proposed buildings are not expected to materially affect the suitability of pedestrian level wind conditions for existing and proposed activities, and the results of the December 2022 wind tunnel tests are considered to remain valid.

The ground level landscaping proposals have not materially changed relative to the scheme assessed.

Minor amendments to the landscaping on the Block H1 roof terrace and the Block H2 / H3 podium terrace are not expected to materially affect the suitability of wind conditions for proposed recreational uses, and the results of the December 2022 wind tunnel tests are considered to remain valid.

The central area of Block H2 / H3's upper roof-top terrace was assessed as suitable for general recreational activities, such as children's play, from spring through to autumn but too windy for outdoor seating (though suitable conditions for outdoor seating were enjoyed in the northern and southern areas of each terrace). It was therefore concluded that the terraces may benefit from further landscaping to maximise the potential for outdoor seating uses. The increase in building heights is expected to slightly exacerbate the channelling of prevailing south-westerly winds between the upper levels of Blocks H2 and H3, whilst the additional trees and tall shrub planting may be less effective in sheltering the space than the porous screens considered in the wind tunnel studies but subsequently removed. Overall,

conditions are expected to remain suitable for general recreational activities, such as children's play, from spring through to autumn but suitable conditions for outdoor seating may be more limited than determined from the December 2022 wind tunnel tests.

3.4. Cumulative Effects

With the introduction of the consented future surrounding developments, the proposed Phase 4 development is more sheltered from north-westerly winds, slightly reducing the potential for accelerated pedestrian level winds around the northeast corners of Blocks H1 and H2.

The resulting pedestrian level wind conditions in and around the Site is presented in terms of the Lawson comfort and safety criteria in Appendix A (for the tested scheme).

Despite the additional shelter from north-westerly winds, wind conditions in and around the site are not materially changed, in terms of suitability for existing and proposed activities, from those discussed above for the proposed development with interim surrounds.

Potential cumulative effects are therefore considered insignificant.

3.5. Mitigation Measures

Conditions are generally suitable, and at least tolerable, for planned pedestrian activities and no mitigation measures are considered to be required.

The central areas of the Block H2 / H3 roof-top terrace would likely benefit from further landscaping to maximise the potential for outdoor seating uses. For example, tall seatbacks or porous screening around the benches.

3.6. Residual Effects

As no mitigation measures are required, the residual effects are as discussed above for the proposed development.

4. Conclusions

Baseline Conditions

Baseline conditions in and around the site rate as safe for all users and are considered comfortable for at least leisurely strolling. Entrances generally enjoy suitable conditions for pedestrian ingress / egress and Phase 3's amenity spaces at both ground and podium level are expected to be acceptable for associated recreational uses.

Impact of Proposed Development

The proposed development has no significant impact on wind conditions with regards to pedestrian safety.

In terms of pedestrian comfort, thoroughfares within and alongside the site are suitable for pedestrian access to, and passage through or past, the proposed development.

All entrances to the proposed development are expected to enjoy suitable conditions for pedestrian ingress / egress.

Bus stops along Silsoe Road enjoy suitable conditions for awaiting a bus.

Recreational spaces generally enjoy suitable conditions for planned activities. The Block H2 / H3 roof-top terraces would likely benefit from further landscaping measures to maximise the potential for outdoor seating.

The proposed development has no significant adverse impact on the pedestrian level wind conditions within the surrounding area and, in conjunction with Phase 5, is expected to enhance conditions within Phase 3's ground and podium level amenity spaces.

No significant cumulative effects with the future surrounding developments are expected.

On the basis of the above, the proposed development is considered compliant with the assumptions and conclusions of the 2017 ES for the consented outline scheme.

Appendix A – Wind Tunnel Testing and Results

Wind Tunnel

The wind tunnel tests were carried out in Imperial College's boundary layer wind tunnel facility. This tunnel has a working section 3.0 m wide, 1.5 m high and 20 m long.

An atmospheric boundary layer, representative of the conditions at the site, was simulated using an arrangement of roughness elements distributed over the floor of the wind tunnel and a 2-dimensional barrier with spires at the entrance to the test section.

The boundary layer simulation was calibrated against the variation in mean wind speed and the intensity and scale of the turbulence with height above ground level appropriate to the site, based on profiles derived using the widely accepted Deaves and Harris log law wind model and a detailed terrain analysis for the area surrounding the site. This method yields a good approximation of the mean flow and turbulence characteristics and fully meets the requirements of clause NA2.2 'Guidance on design assisted by testing and measurements' from the UK National Annex to BS EN 1991-1-4:2005.

Figure A.1 presents the variation of mean wind speed, longitudinal turbulence intensity and gust wind speed used in the tests. The wind speed profiles are normalised by the mean wind speed at a reference height of 86 m.

Wind Tunnel Model

The wind tunnel model of the proposed development and existing / consented surrounding area was constructed by Multiservicesvs Ltd., based on a 3D CAD model and survey information provided by the design team from November to December 2022. The linear scale of the model is 1:300. The model was constructed on a circular baseboard of diameter 2.4 m, with the development located near to the centre of the baseboard.

Proposed semi-mature and existing mature trees were modelled in winter, or bare, format.

Figure A.2a illustrates the assessment scenarios. Figure A.2b illustrates the models for baseline conditions, the proposed development in the context of interim surrounding conditions and the proposed development with consented future surrounding developments. Details of key designed-in features are presented in Figure A.2c and Figure A.2d shows the locations of the wind speed sensors, with the proposed or existing uses assumed in the assessment.

Instrumentation

Measurements of pedestrian level wind speed were made using instruments known as Irwin probes. These are standard devices for such measurements. The probes consist of a small tube with a pit at its base. The pressure difference between the top of the tube and the pit is calibrated against wind speed. The top of the tube is set at an equivalent full-scale height

of 1.5 m to measure wind speeds at pedestrian height. The sampling rate, combined with the wind tunnel running speed and the linear scale of the model, were appropriate to the model scale simulation used.

People subjected to fluctuating or gusty wind conditions will react to either the mean wind strength or to the maximum gust that occurs. For this reason, both the mean and maximum gust speeds were determined for each measurement location. The gust speed was then converted to a gust-equivalent-mean value based on a standard factor of $1 / 1.85$.

Measurements were made for a full range of wind directions in 22.5° increments. This is a standard and widely applied approach and is considered suitable to provide a robust and appropriate assessment, whilst helping optimise the testing efficiencies. The wind tunnel measurements were recorded as non-dimensional wind speed ratios relative to the wind tunnel reference wind speed.

Wind Climate Statistics

The wind climate, based on combined statistics from Heathrow and London City Airports for the period 2001 to 2021 transposed to apply to the site, is summarised in Figure A.3 in terms of the seasonal wind speed and direction probability distributions at a reference height of 86 m, corresponding to the approximate maximum roof height of the proposed development above the local ground level. The factors applied to correct the statistics from open-country terrain to reference height at the site are also presented.

Pedestrian Level Wind Environment Results

The measured wind speed ratios from the wind tunnel tests are combined with the wind statistics applicable to the site to assess the pedestrian level wind environment based on the Lawson criteria for pedestrian comfort and safety. The resulting annual and seasonal ratings for each measurement location are summarised in Figures A.4 for the following scenarios:

- Baseline conditions;
- Proposed development with interim surrounds; and
- Proposed development with consented future surrounds.

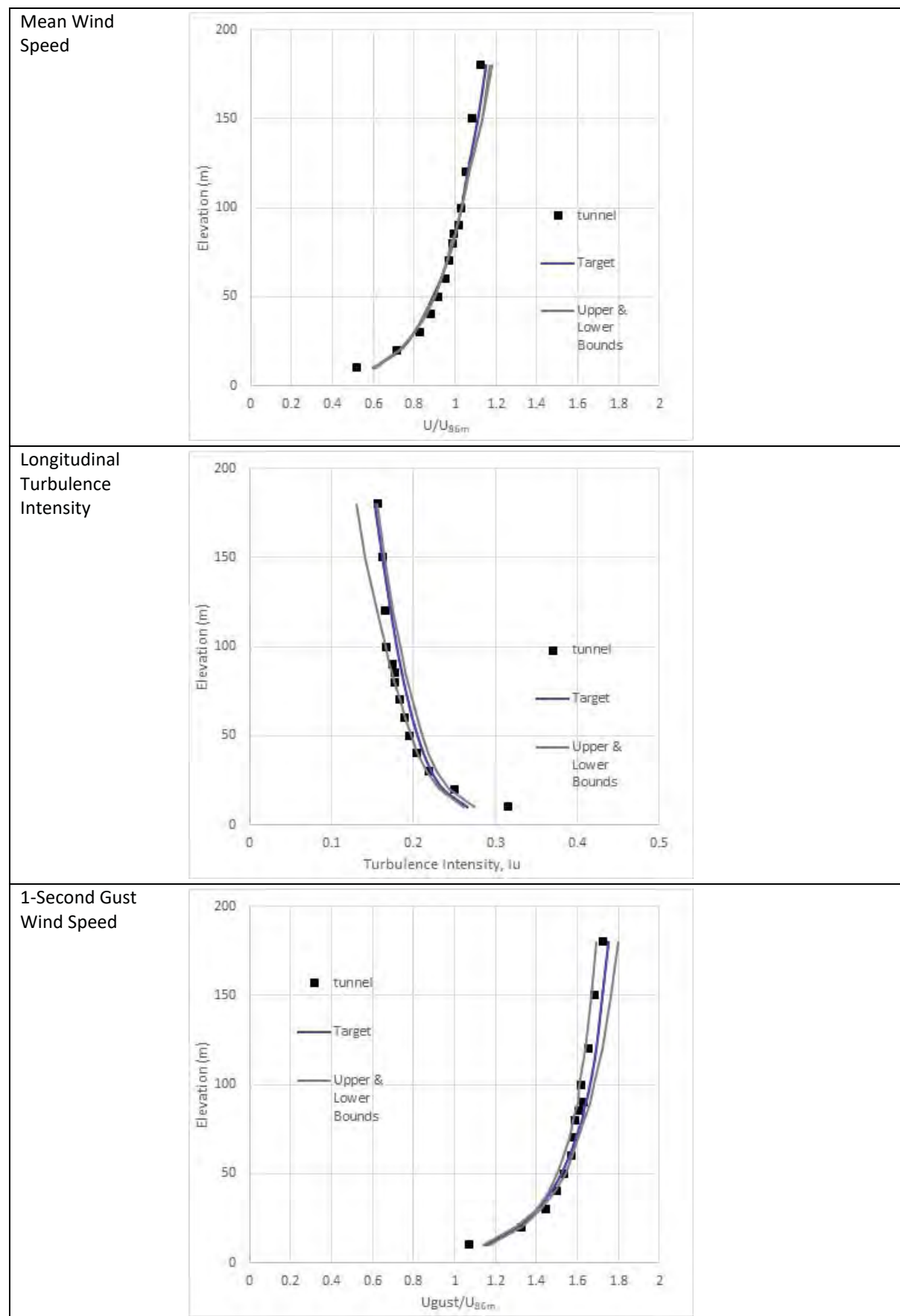
Figure A.1: Wind Tunnel Boundary Layer Simulation

Figure A.2a: Assessment Scenarios

Baseline
Conditions



Proposed
Development
With
Interim
Surrounds



Proposed
Development
With
Future
Surrounds



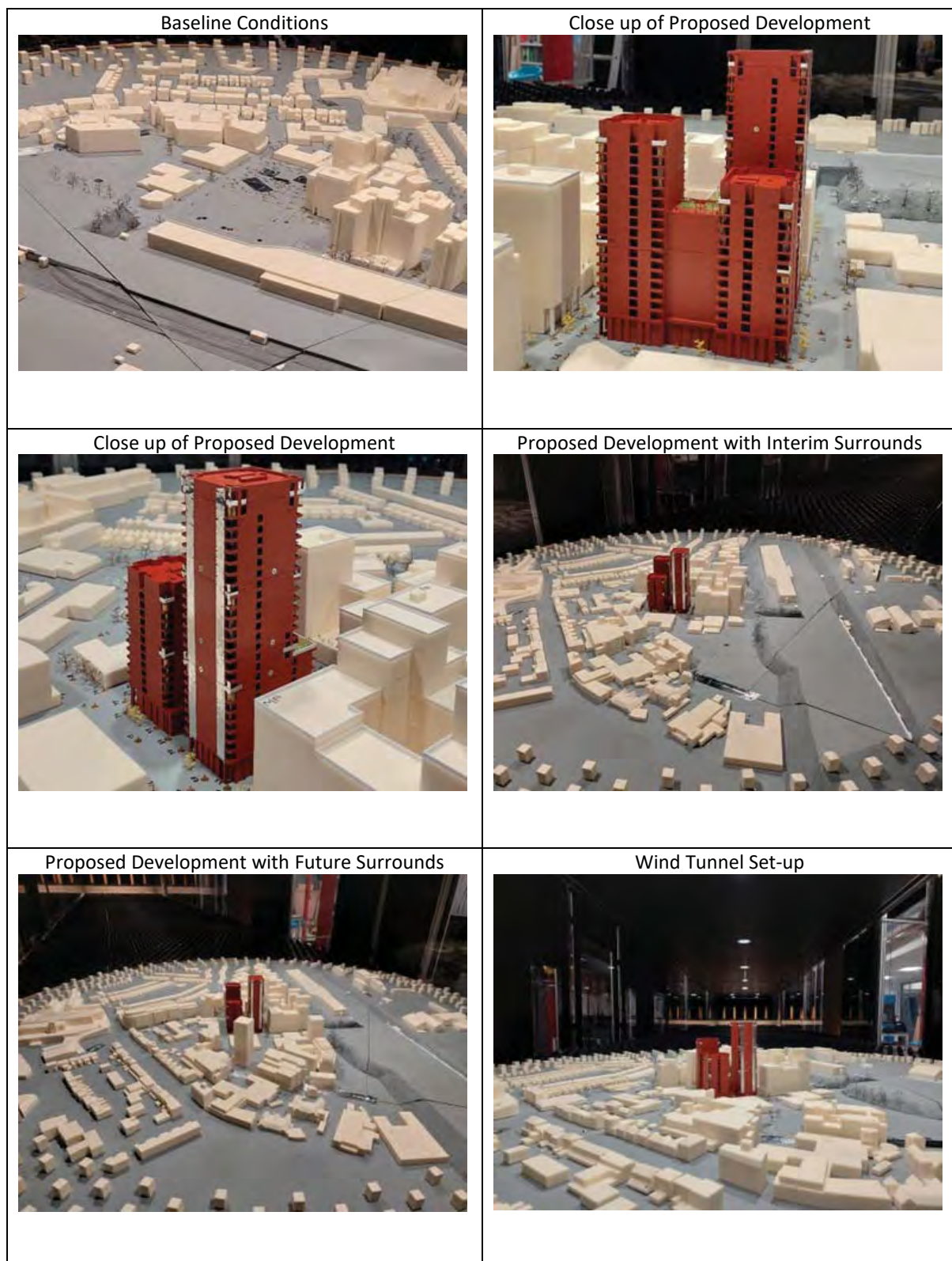
Figure A.2b: Wind Tunnel Models

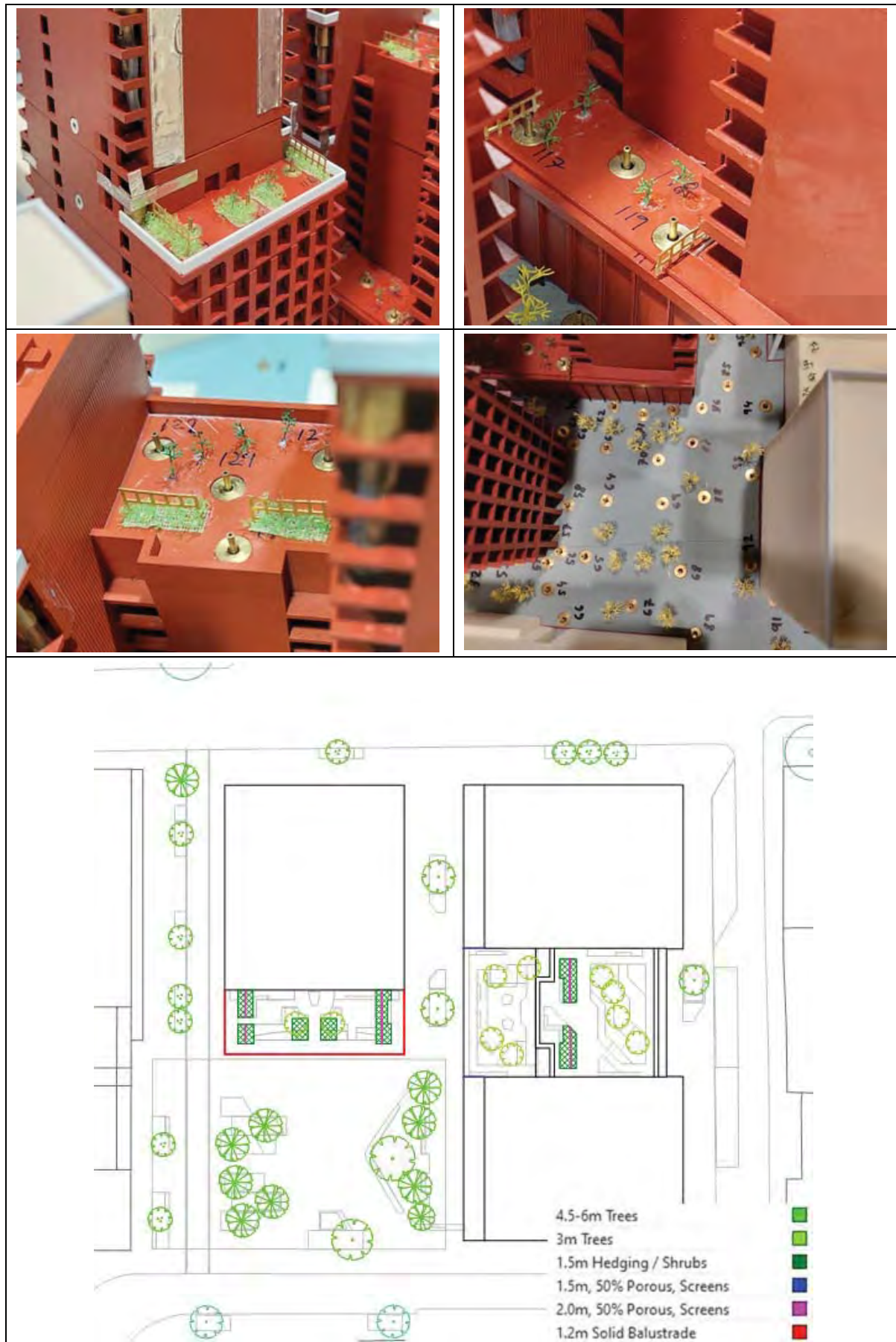
Figure A.2c: Wind Tunnel Models – Landscaping and Designed-In Features

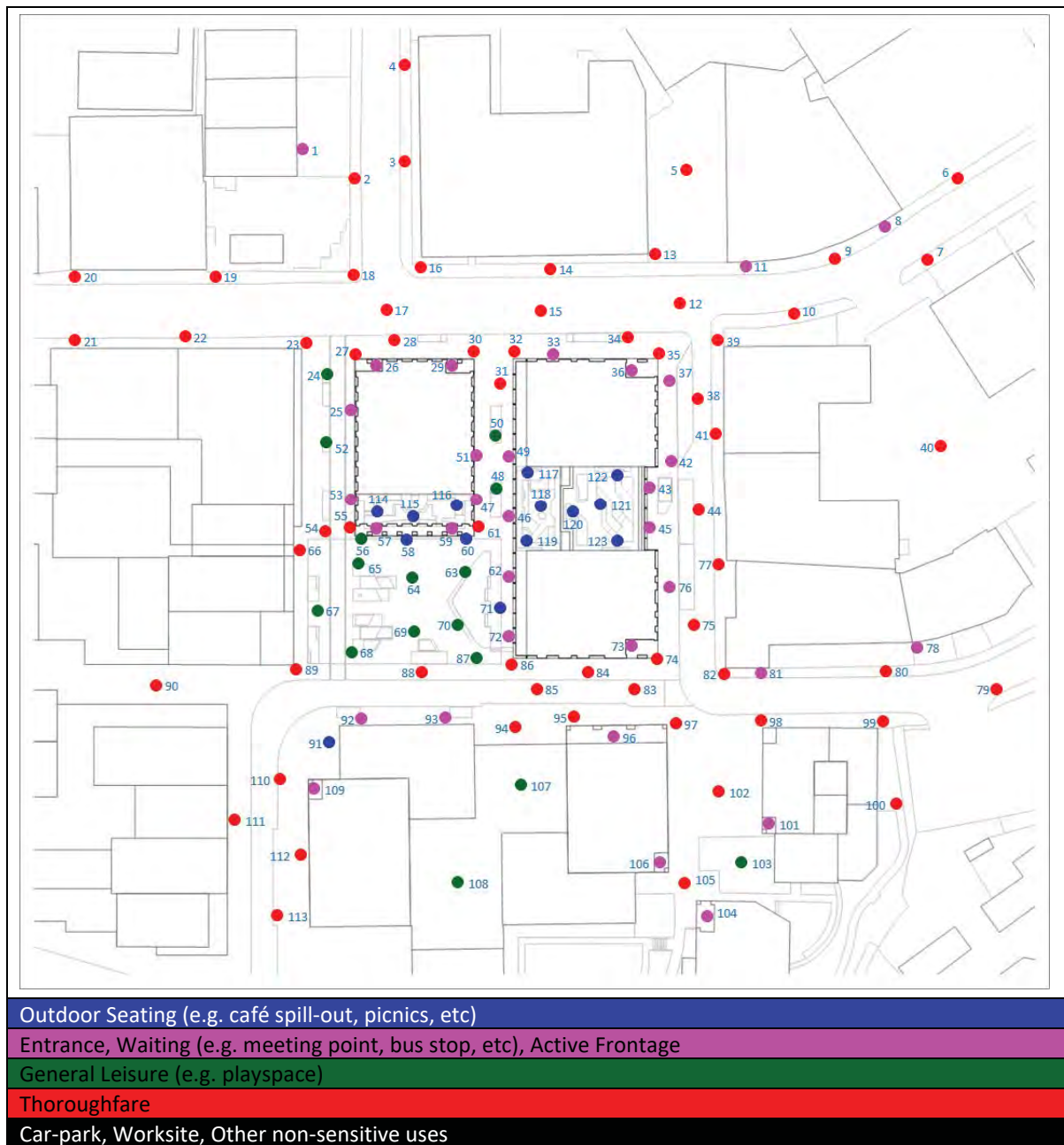
Figure A.2d: Wind Speed Sensor Locations and Proposed / Existing Uses

Figure A.3a: Wind Speed Correction Factors, Open Country to Ref. Height (86 m) at Site

Direction	0°	22.5°	45°	67.5°	90°	112.5°	135°	157.5°
Factor	1.28	1.27	1.26	1.25	1.25	1.24	1.23	1.22
Direction	180°	202.5°	225°	247.5°	270°	292.5°	315°	337.5°
Factor	1.21	1.21	1.22	1.24	1.24	1.25	1.26	1.27

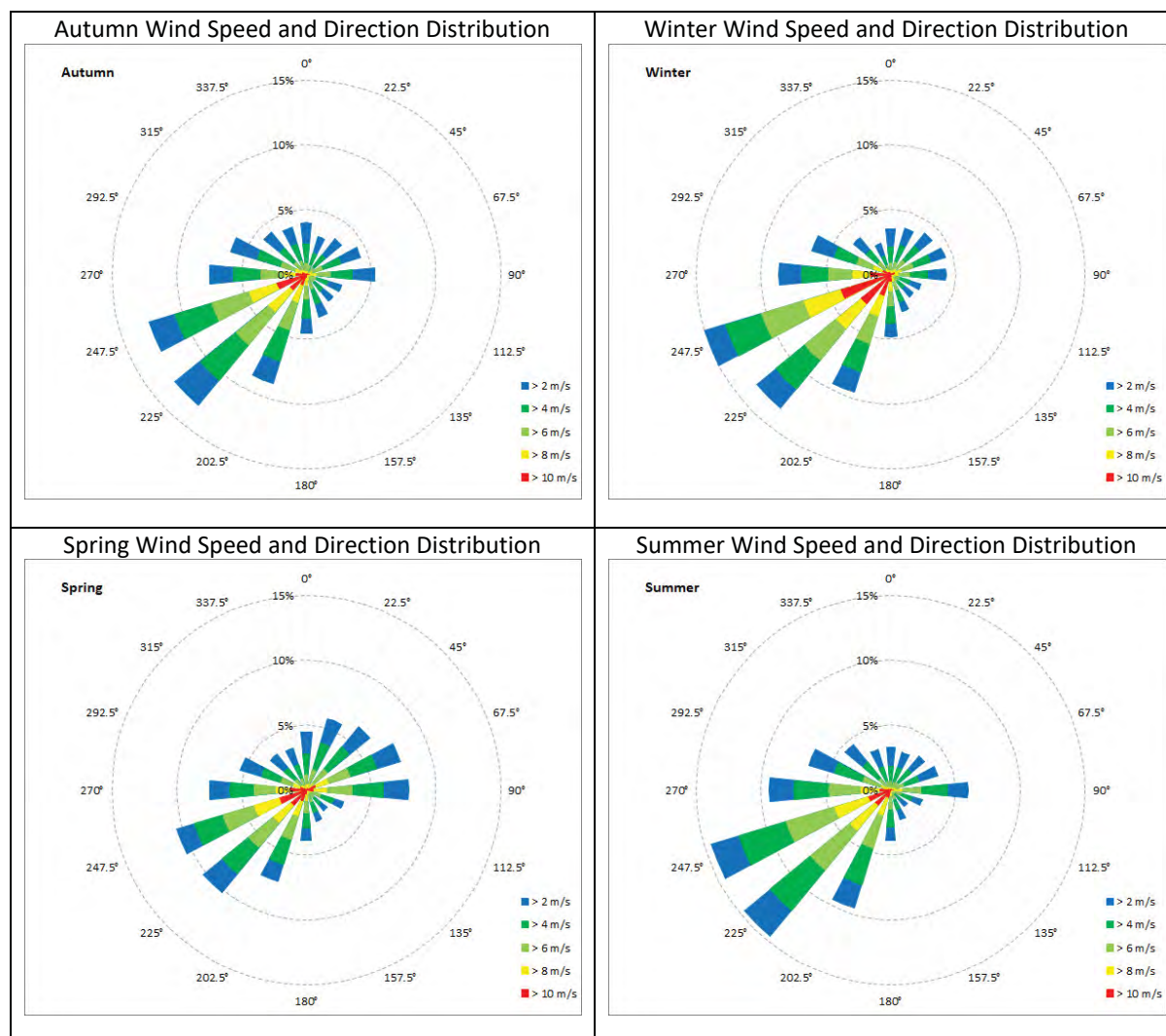
Figure A.3b: Wind Climate at Site (at reference height of 86 m)

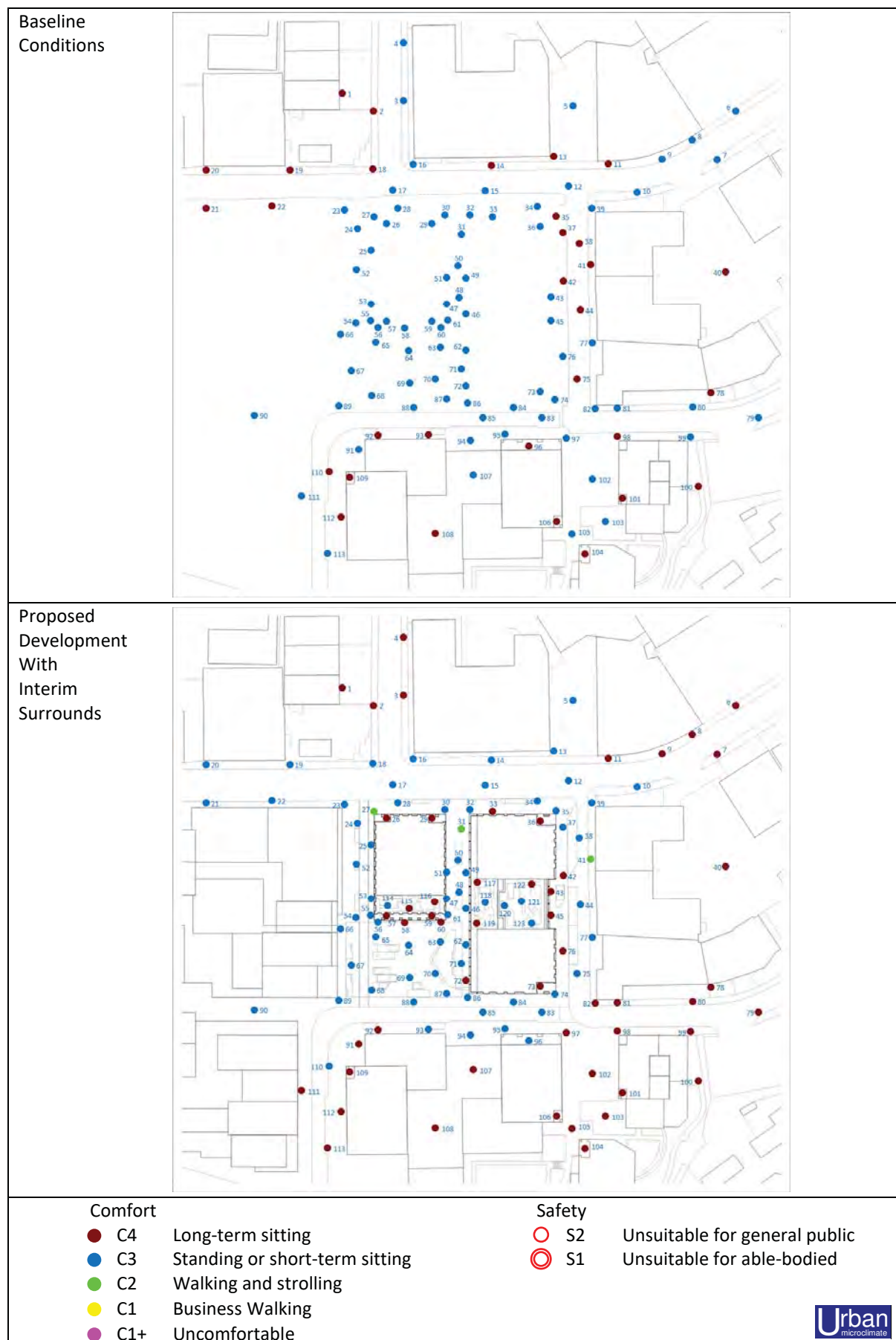
Figure A.4a: Wind Environment – Annual Comfort and Safety Ratings

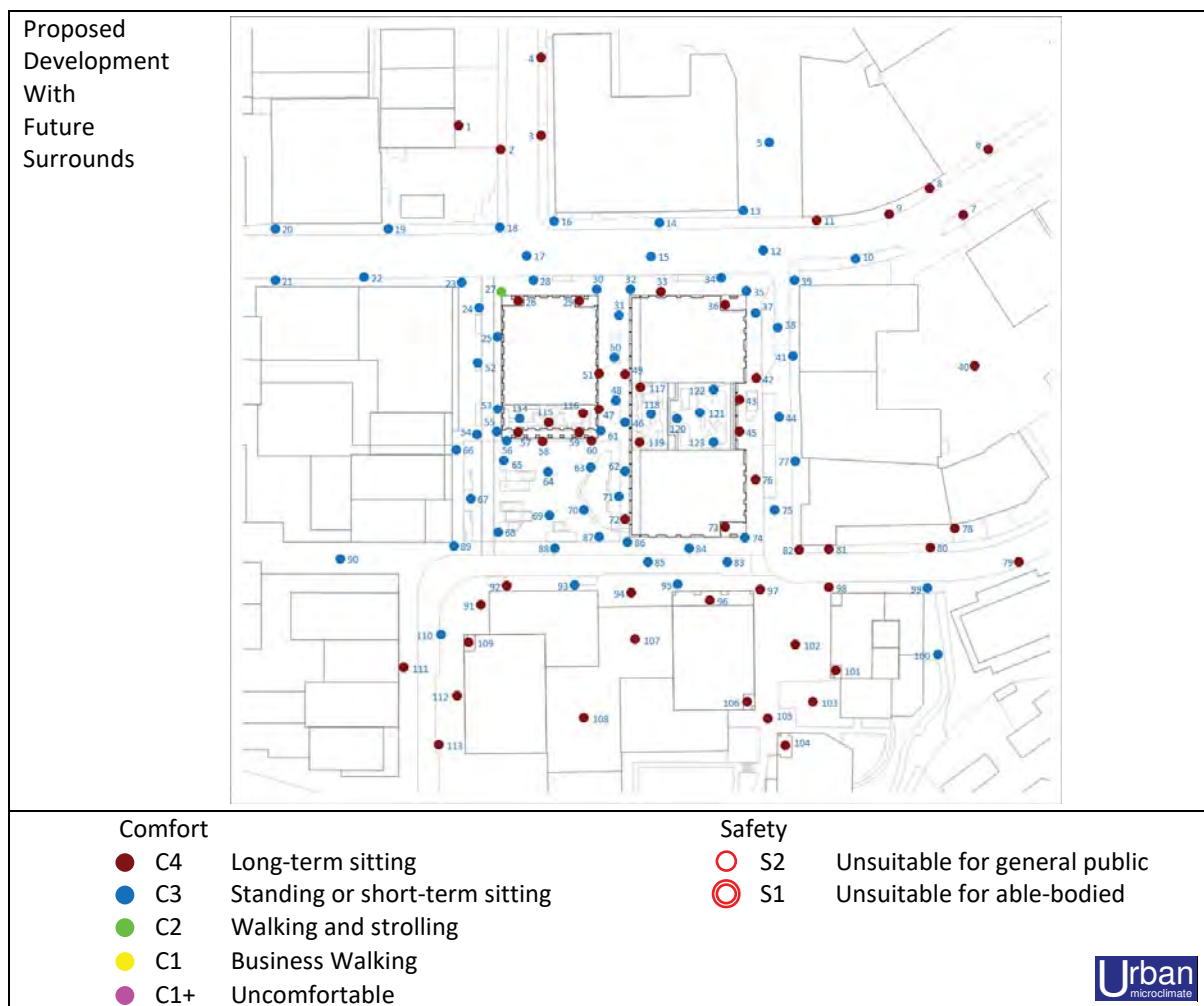
Figure A.4a: Wind Environment – Annual Comfort and Safety Ratings

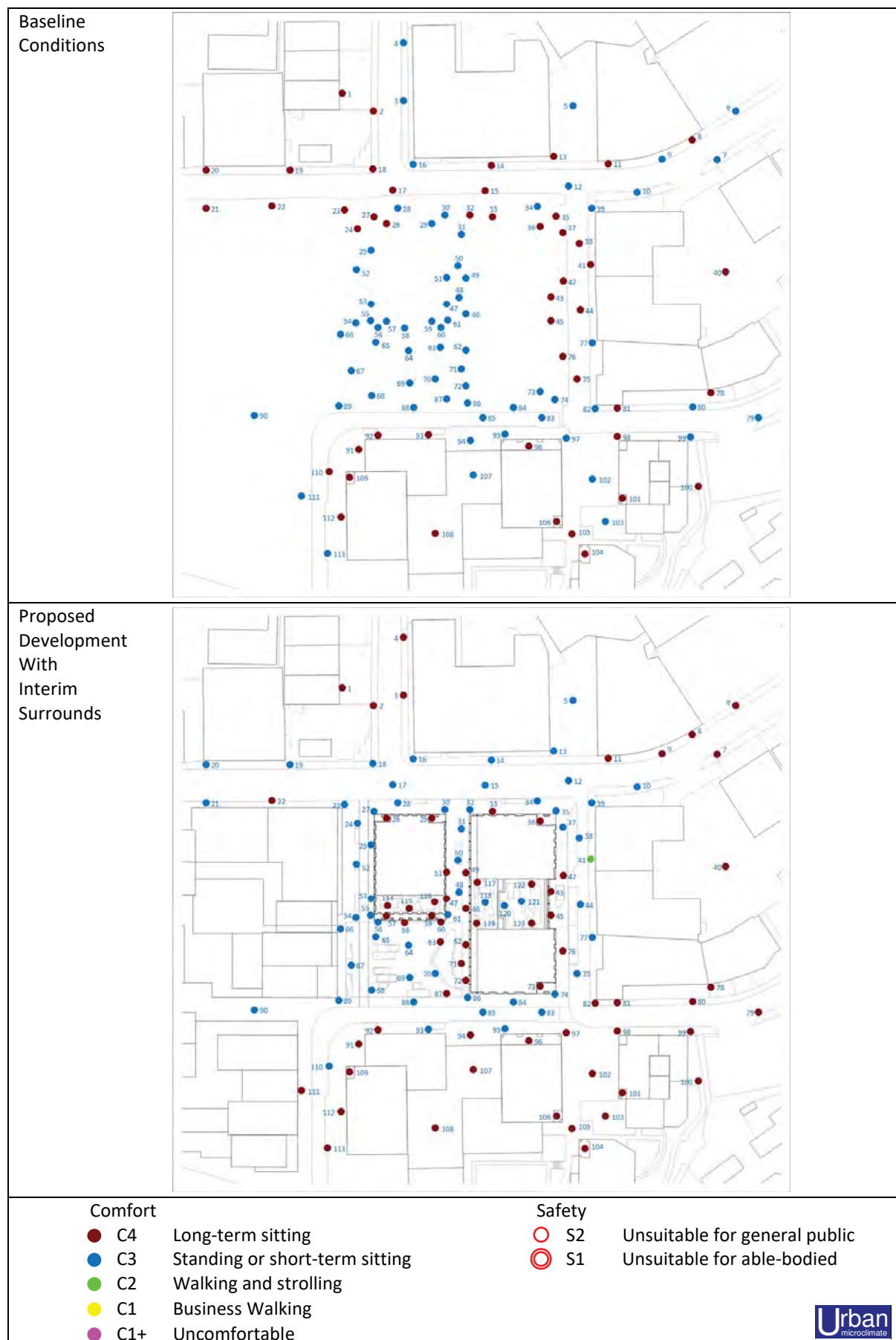
Figure A.4b: Wind Environment – Autumn Comfort and Safety Ratings

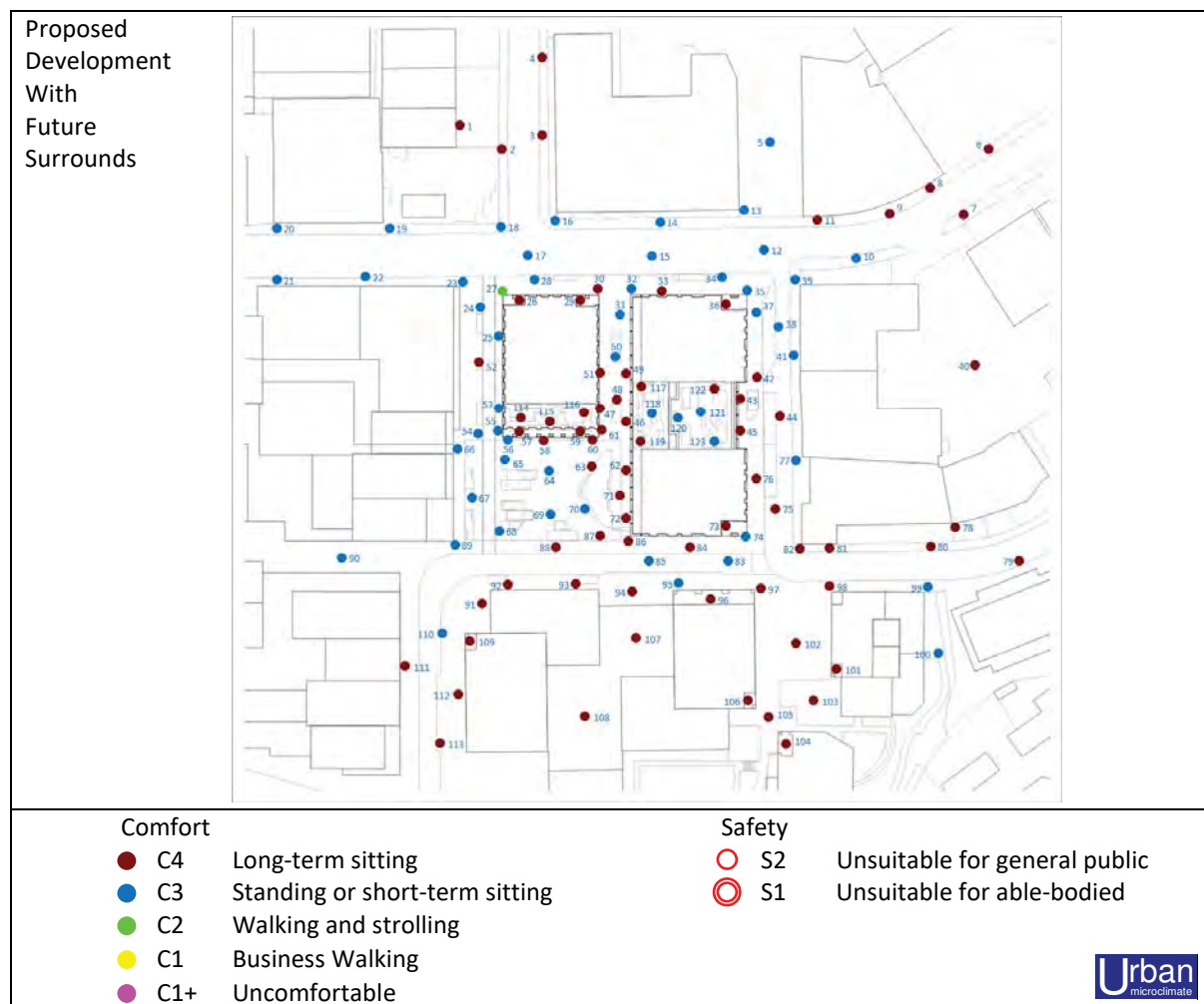
Figure A.4b: Wind Environment – Autumn Comfort and Safety Ratings

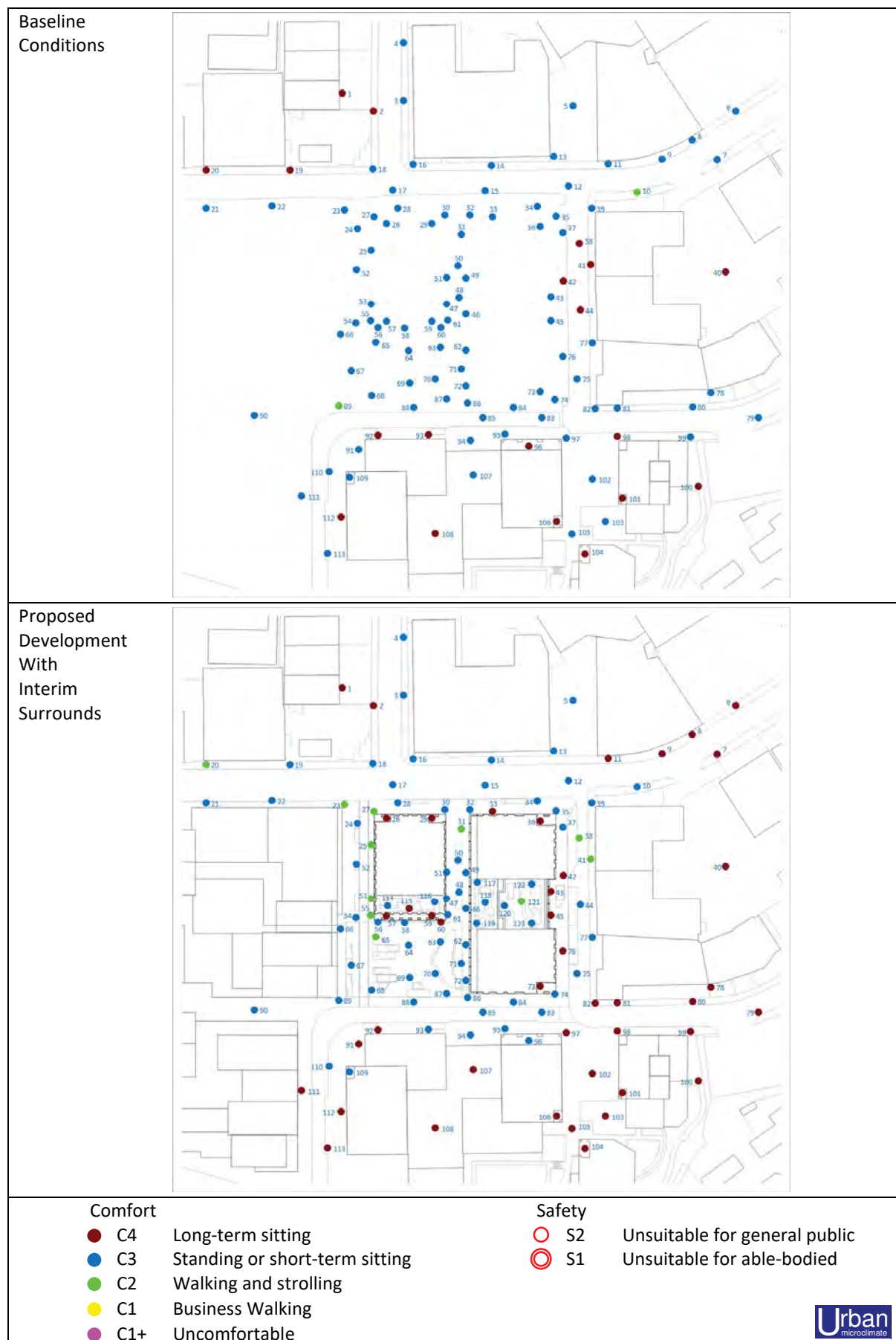
Figure A.4c: Wind Environment – Winter Comfort and Safety Ratings

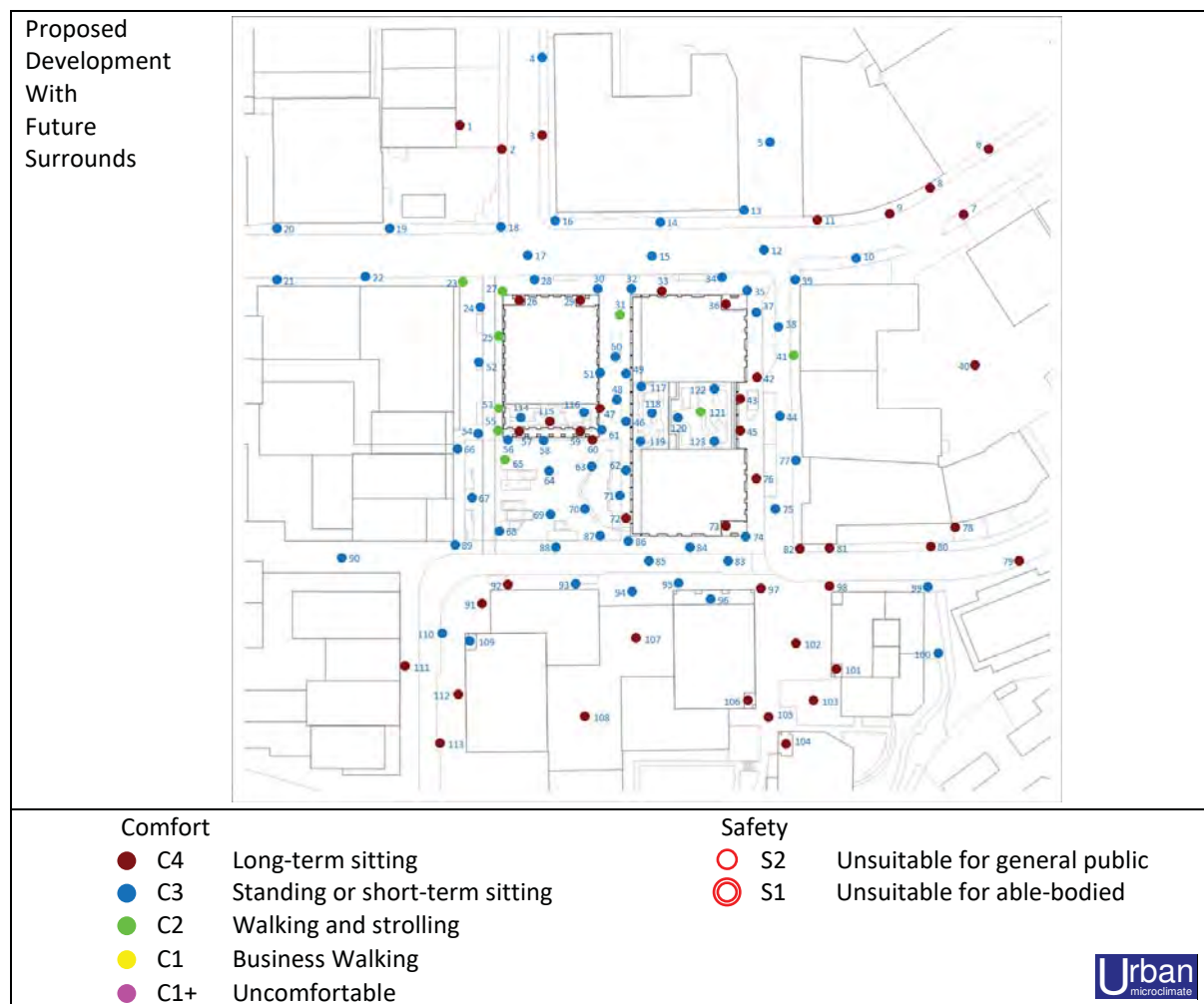
Figure A.4c: Wind Environment – Winter Comfort and Safety Ratings

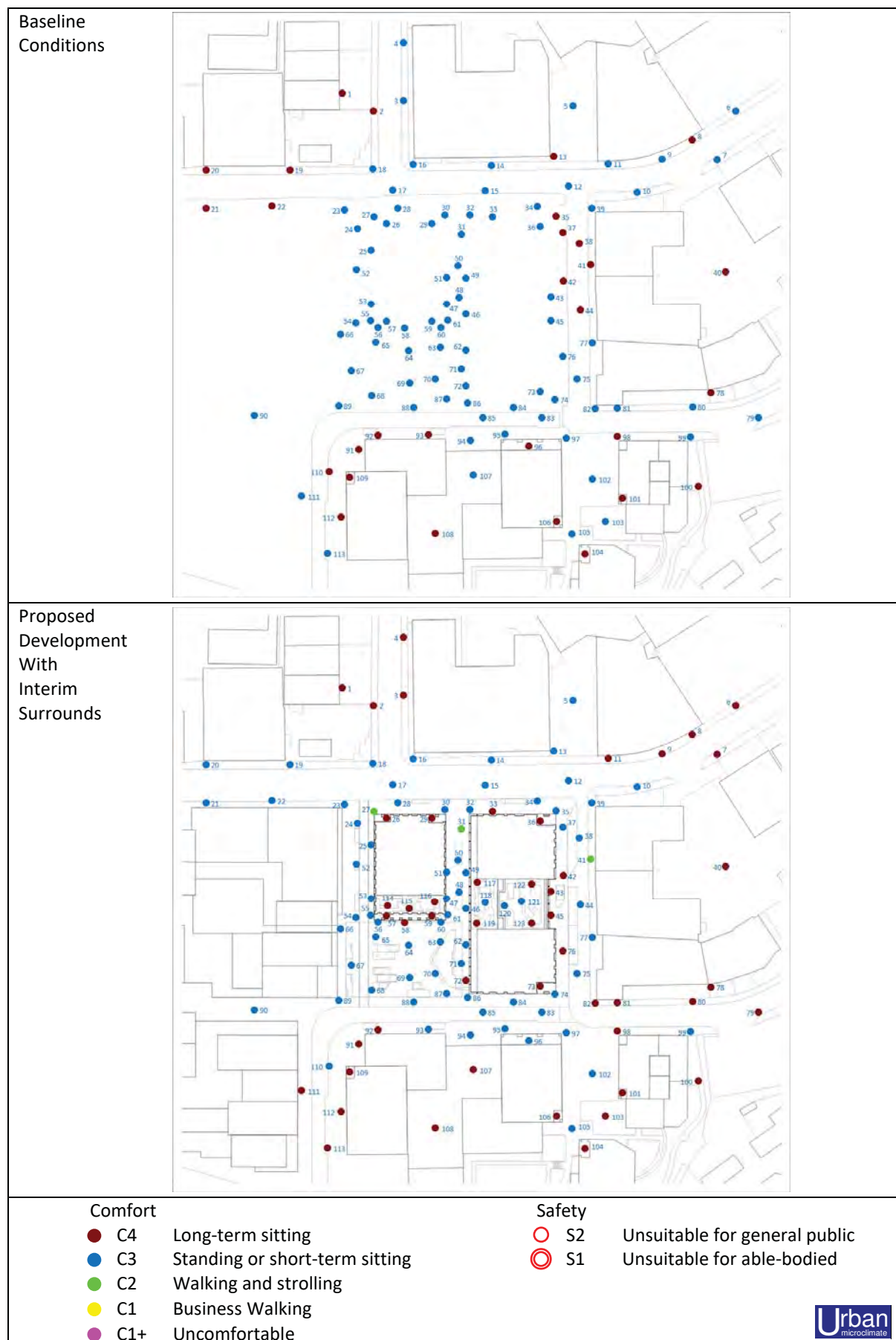
Figure A.4d: Wind Environment – Spring Comfort and Safety Ratings

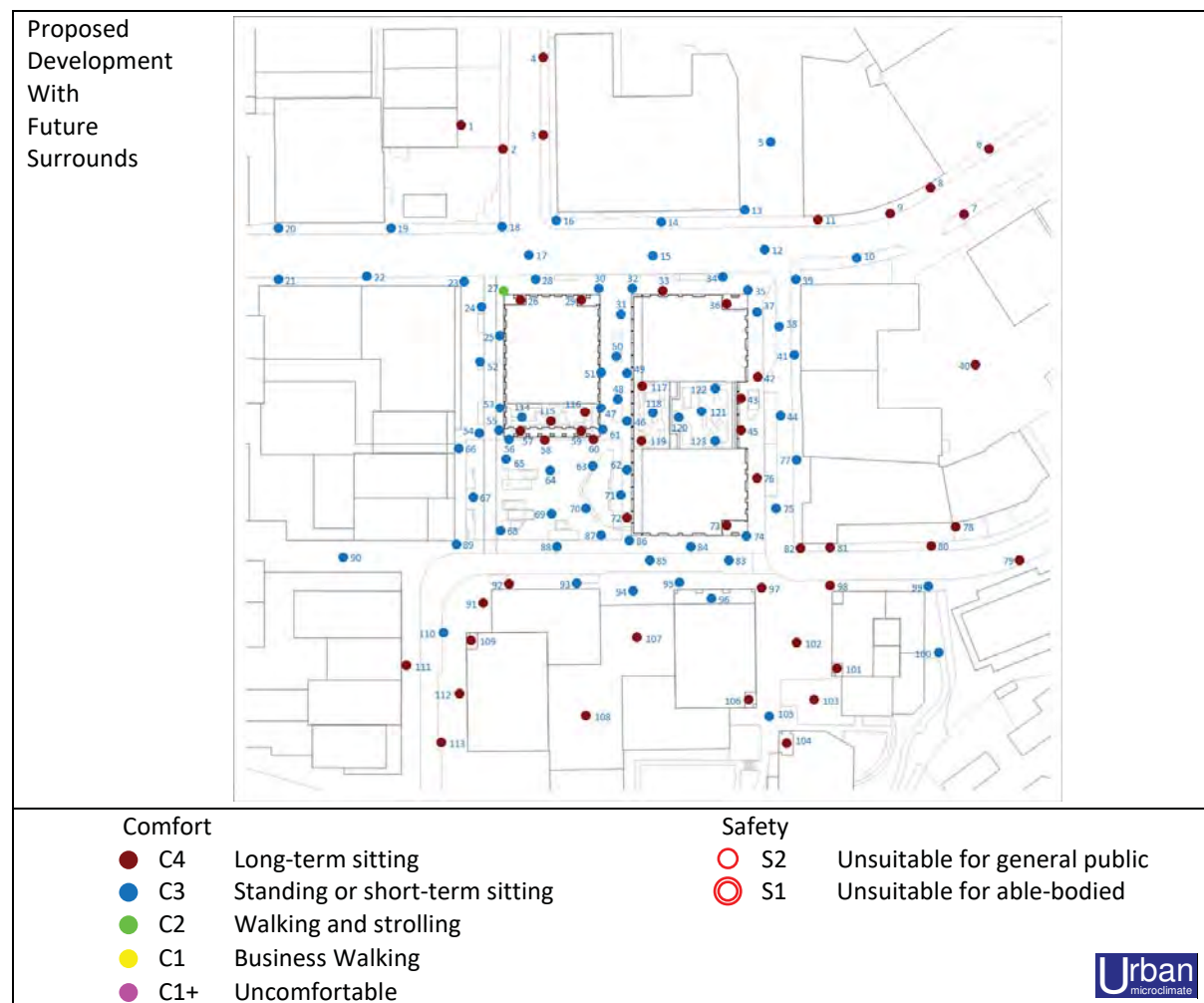
Figure A.4d: Wind Environment – Spring Comfort and Safety Ratings

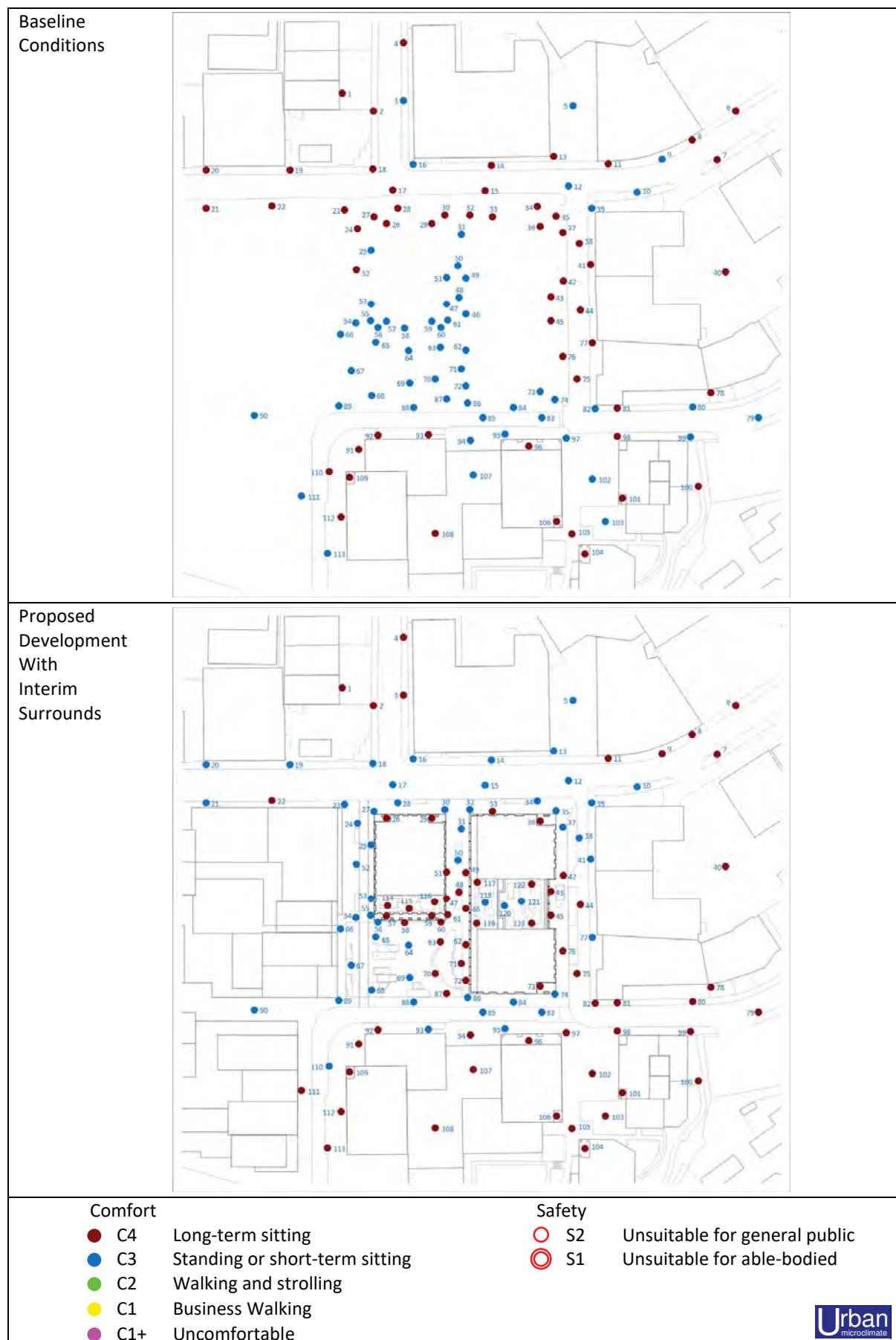
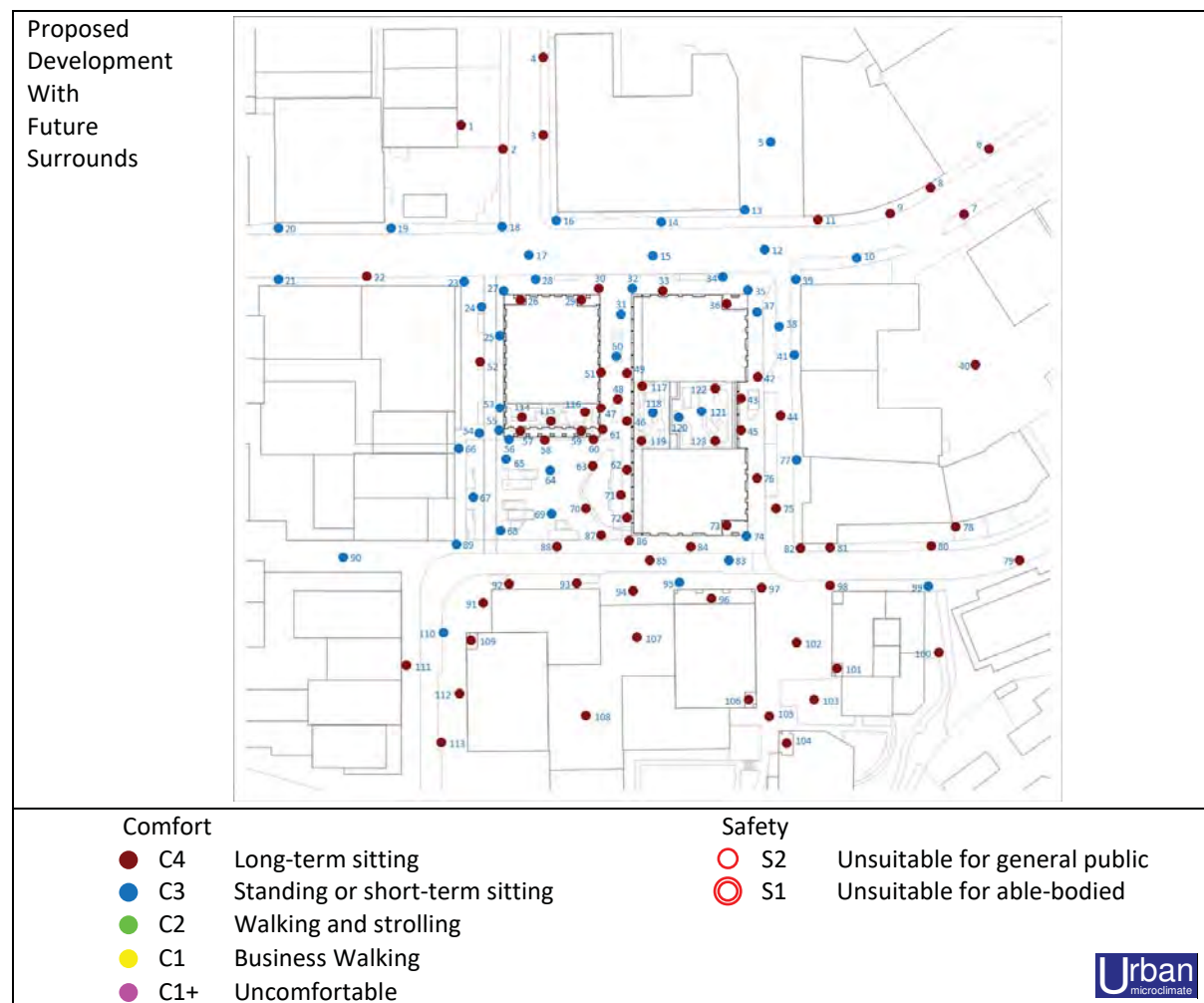
Figure A.4e: Wind Environment – Summer Comfort and Safety Ratings

Figure A.4e: Wind Environment – Summer Comfort and Safety Ratings

APPENDIX 1.7: TOWNSCAPE, HERITAGE AND VISUAL IMPACT ASSESSMENT, DATED AUGUST 2023

Clarendon Square

H Plots Reserved Matters Application

Townscape, Heritage and Visual Impact Assessment
August 2023

Tavernor



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1 Introduction

Introduction

- 1.1 This Townscape, Heritage and Visual Assessment (THVIA) has been prepared for St Williams Homes LLP ('the Applicant') to accompany the Reserved Matters Application (RMA) for Plots H1, H2 and H3 of the former Clarendon Gas Works, Olympia Trading Estate, and the industrial units that front onto Western Road (Nos. 57-89 Western Road) near Wood Green in north London, N8 (the 'Proposed Development').
- 1.2 A hybrid planning application for the former Clarendon Gasworks site was submitted in October 2017 (Planning reference: HGY/2017/3117). The effects of the proposals on townscape, views and built heritage were assessed in ES Volume II: Townscape Heritage and Visual Assessment (THVIA), the 'October 2017 THVIA'. The application was consented in April 2018. Plots H1, H2 and H3 were sought for approval in outline. An application to amend the maximum parameter envelope for Plots H1, H2 and H3 was submitted in May 2021 (Planning reference: HGY/2021/1392) and consented in June 2021. Together these form the 'Consented Scheme'.
- 1.3 This THVIA assesses the potential effects of the detailed design of Plots H1, H2 and H3 in isolation and cumulatively on the character of selected local and wider townscape, in views and on the settings of relevant above ground built heritage assets. The purpose of this THVIA is to assess the RMA and set out whether the October 2017 THVIA remains valid for decision making, or whether new or materially different significant environmental effects are likely to arise as a result of the RMA.
- 1.4 This THVIA has been prepared by the Tavernor Consultancy Ltd ('Tavernor Consultancy') and is based on architectural drawings and the Design and Access Statement (DAS) provided by Sheppard Robson, which also form part of the planning application, and selected verified views with Computer Generated Images (CGIs) of the Proposed Development prepared by Cityscape, which are included in Section 3.0 of this Volume.

Planning Policy Context

- 1.5 The following policy documents and guidance have been updated, submitted or adopted since the October 2017 THVIA:

National Planning Policy

- *National Planning Policy Framework (NPPF)* (2019) (Ref 1-1)
- *Planning Practice Guidance (PPG)* (March 2014; thereafter revised) (Ref 1-2)
- *National Design Guide* (2021) (Ref 1-3)
- *Historic England Advice Note 4: Tall Buildings* (March 2022) (Ref 1-4)

Regional Planning Policy

- *The London Plan: Spatial Development Strategy*

for Greater London (March 2021) (Ref 1-5)

Local Planning Policy

- 1.6 The Wood Green Area Action Plan, which was expected to be published in late 2018 has yet to be adopted (Ref 1-7). As such there are no changes to the relevant policy considerations as laid out in the October 2017 THVIA.
- 1.7 LB Haringey are in the initial stages of producing a New Local Plan, the consultation report for the First Steps Engagement alongside a Draft Local Plan for further consultation is expected to be published in summer 2023. In lieu of this Draft Local Plan, the adopted July 2017 guidance remains the relevant local policy consideration (Ref 1-8).

National Planning Policy Framework (NPPF) (2019) (Ref 1-1)

- 1.8 A National Planning Policy Framework (NPPF) was introduced in 2012 to replace the previous Planning Policy Statements (PPS), and revised in July 2018, February and June 2019. It sets out the Government's overarching planning policies on the delivery of sustainable development through the planning system.
- 1.9 Chapter 12 states that '*the creation of high quality, beautiful and sustainable buildings and places is fundamental to what the planning and development process should achieve. Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities*' (para. 126). It states that development should adhere to design guides or codes prepared by the local planning authority, consistent with the principles set out in the National Design Guide which reflect local character and design preferences (para. 128). Planning policies and decisions should "*function well and add to the overall quality of the area, not just for the short term but over the lifetime of a development*", be "*visually attractive as a result of good architecture, layout and appropriate and effective landscaping*" and "*optimise the potential of the site to accommodate and sustain an appropriate amount and mix of development (including green and other public space)*" (para. 127); and that design quality should be considered throughout the evolution and assessment of development proposals (para. 132).

- 1.10 Policy and guidance relating to conservation and enhancement of the historic environment is set out in Chapter 16 of the NPPF. It is broadly consistent with the policies in NPPF 2012 Chapter 12, which it replaces.

National Planning Practice Guidance (PPG) (First published March 2014; thereafter continuously updated) (Ref 1-2)

- 1.11 The PPG, published by the Department for Communities and Local Government (DCLG), is an online resource providing guidance on implementing the policies of the NPPF (Ref 1-1). There are two sections of the PPG that are of particular relevance to this assessment:
- Design: process and tools (updated 1st October 2019); and

- Historic environment.
- 1.12 The PPG on 'Design: process and tools', which supports Section 12 of the NPPF, states that local planning authorities are required to take design into consideration, stating that: *'where the design of a development accords with clear expectations in plan policies, design should not be used by the decision-maker as a valid reason to object to development.'*
- 1.13 The guidance further provides details of tools for assessing and improving design quality, including: the National Design Guide; local design guides and codes; design review; and assessment frameworks. (Paragraph: 016 Reference ID: 26-016-20191001).

National Design Guide (2021) (Ref 1-3)

- 1.14 First published on 1st October 2019 and updated in March 2021, the National Design Guide (NDG) sets out the characteristics of well-designed places and demonstrates what good design means in practice. It forms part of the government's collection of planning practice guidance and should be read alongside the separate planning practice guidance on 'Design: process and tools'. The guidance is intended to support the NPPF which sets out that achieving high quality places and buildings is fundamental to the planning and development process. The NDG outlines the Government's priorities for well-designed places in the form of ten characteristics. The guidance states that: 'In a well-designed place, an integrated design process brings the ten characteristics together in a mutually supporting way. They interact to create an overall character of place.' (p.4)
- 1.15 The National Design Guide outlines the key components of good design, including: layout; form; scale; appearance; landscape; materials; and detailing. The document states that: *'All developments are made up of these components put together in a particular way. The choices made in the design process contribute towards achieving the ten characteristics and shape the character of a place.'* (p.5)
- 1.16 The ten characteristics that contribute towards well-designed places and are intended to foster local character, community and be sensitive to climate change, are:
- Context – enhances the surroundings;
 - Identity – attractive and distinctive;
 - Built form – a coherent pattern of development;
 - Movement – accessible and easy to move around;
 - Nature – enhanced and optimised;
 - Public spaces – safe, social and inclusive;
 - Uses – mixed and integrated;
 - Homes and buildings – functional, healthy and sustainable;
 - Resources – efficient and resilient; and
 - Lifespan – made to last.

- 1.17 Each of these ten characteristics are described in detail in Part 2 of the NDG and each heading includes two or three policy directions and a number of good practice examples.
- 1.18 Within 'Context' and 'Identity', the guidance emphasises the importance of understanding place, noting that new development should respond positively to the site itself and its local and wider context. The NDG further highlights the importance of understanding the history of how a place has evolved, noting that well-designed places and buildings are influenced positively by the significance and setting of heritage assets and any other specific features that merit conserving and enhancing. The PPG is an online resource providing guidance on implementing the policies of the NPPF (Ref 1-1). Design: process and tools (updated 1st October 2019) is of relevance to this assessment.
- 1.19 The section on Built Form (p.18-21) describes well-designed places as compact walkable development, which brings people together at density appropriate to support local facilities and services and makes efficient use of land. It states that *"the appropriate density will result from the context, accessibility, the proposed building types, form and character of the development"* (Paragraph 66). *"Well-designed places use the right mix of building types, forms and scale of buildings and public spaces for the context and the proposed density..."* (Paragraph 67). This section notes that *"Well-designed tall buildings play a positive urban design role in the built form. They act as landmarks, emphasizing important places and making a positive contribution to views and the skyline."* (Paragraph 70) and that *"Proposals for tall buildings (and other buildings with a significantly larger scale or bulk than their surroundings) require special consideration. This includes their location and siting; relationship to context; impact on local character, views and sight lines; composition - how they meet the ground and the sky; and environmental impacts, such as sunlight, daylight, overshadowing and wind. These need to be resolved satisfactorily in relation to the context and local character."* (Paragraph 71)

Historic England Advice Note 4: Tall Buildings (March 2022) (Ref 1-4)

- 1.20 This guidance updates the first edition of Advice Note 4, published in 2015, in light of changes to national planning policy and guidance and HE's recent experience of planning for tall buildings in the historic environment. The advice notes that *"tall building proposals that take account of the historic environment and are designed to avoid or effectively mitigate harm to it, would constitute sustainable development in heritage terms"* (Paragraph 2.2). It recognises that *"Good design can ensure that tall buildings respond positively to the character of the surrounding area and the historic environment and can be used creatively to achieve sustainable outcomes."* (Paragraph 2.7), *"In the right locations tall buildings can support major change or regeneration while positively influencing place-shaping and conserving the historic environment"* (Paragraph 3.1). However, *"If a tall building is not in the right place, by virtue of its size and widespread visibility, it can seriously harm the qualities that people value about a place. There will be locations where the existing qualities of place are so distinctive and the level of significance of heritage assets so great that tall buildings will be too harmful, regardless of the perceived quality of the proposal's design and architecture."* (Paragraph 3.2)

- 1.21 The guidance does not define a tall building, stating that the London Plan (Ref 1-9) requires boroughs to define what is tall based on local context and, for situations where there is not possible, there is a minimum threshold that can be applied contained in London Plan Policy D9.
- 1.22 Section 4 of the guidance provides a list of the factors that should inform the approach to tall building design:
1. The response to local context: this includes considering how the tall building relates to its neighbours. It is helpful to consider the relationship between the top, middle, and base of a tall building with its neighbours and the potential impact on streetscape and skyline. There may be opportunities to improve local character through design.
 2. The impact on the local environment: the experience of local character and the historic environment can be affected by micro-climatic factors such as wind and overshadowing. In some cases, this has the potential to impact the physical fabric of heritage assets.
 3. Architectural quality: consideration can be given to whether a distinctive landmark design or a restrained architectural response is more appropriate. High-quality tall buildings are designed 'in the round' to be coherent from all directions taking account of scale, form, massing, proportions, silhouette, façade materials and detailed surface design.
 4. Functional design: façade treatment and finishes, external lighting, placement of plant and servicing are all important considerations. The design of tall buildings should reflect or reference local street-based qualities, such as active frontages and human scale design at street level.
 5. Sustainable design and construction: opportunities to enhance the appearance of an area and reduce harm to the historic environment through the re-development or retrofit of a tall building can be explored.
 6. A well-designed inclusive environment: tall buildings can have a significant impact on the historic streetscape and public realm. In some cases, redevelopments may create opportunities to enhance elements of the significance of heritage assets by opening lost views or revealing historic street patterns.
- 1.23 The guidance describes the distinction between setting and views:
- "Setting is more comprehensive and can include contextual elements which deal with the relationship of an asset to its surroundings both in the present and in the past. This includes the way a heritage asset or place is experienced and perceived today."*
- Views are a more defined element of setting, and not every heritage asset will have significant views associated with it. Nonetheless, views can make a vital contribution to the setting of heritage assets and constitute part of an asset's significance, for example Liverpool's Cathedrals, Oxford's 'dreaming spires' or London's protected views of St Paul's Cathedral, the Palace of Westminster and the Tower of London."* (Paragraph 4.8)

- 1.24 The guidance describes the benefits of planned tall building clusters: *“Establishing a consolidated form of tall buildings as a cluster can bring some benefits if it is well-defined, well-designed, integrated, and managed. Without careful consideration and long-term management there is a risk that the cluster could sprawl. If appropriately managed as an integrated whole, clusters can deliver high densities while minimising cumulative impacts that may be harmful to the historic environment.”* (Paragraph 4.16)
- 1.25 In Section 5, the guidance notes the importance of visualisations in helping to communicate the proposed appearance of new developments and aiding the assessment of built heritage impacts. It notes that visualisations should reflect human experience in the selection of an appropriate eye height, viewing position and camera lens, with views showing different seasons, weather conditions and times of day. It notes that Zones of Visual Influence (ZVI) are a useful initial tool for understanding the potential impact of a tall building and selecting viewpoints. Fixed views from a defined single point are considered helpful for considering the impacts on design views or those identified in development plans and conservation appraisals. Kinetic or dynamic views allow a more experiential representation of potential impacts which may better reflect the experience of heritage assets and their settings.
- 1.26 The guidance recognises that in some circumstances potential impacts on the historic environment may occur, which can be reduced through mitigation measures including:
- *“Locating taller elements of a development on less sensitive parts of a site, by carefully considering layout;*
 - *Creating a human scale experience by setting tall buildings back from the street and/or ensuring that the base of the tall building enhances or better reveals heritage assets, historic street patterns and spaces;*
 - *Designing the tall building to be sympathetic within the local context using materials, massing, and discrete or subtle architectural and functional features;*
 - *Minimising the bulk of tall buildings, especially at their tops, to help reduce the overall perception of mass; and*
 - *Designing the tall building to take account of the profile and silhouette of a cluster, and prominence of the cluster within the historic town or cityscape.”*
- 1.27 The guidance recommends that LPAs consider cumulative impacts of tall building proposals with other existing tall buildings, to ensure that:
- *“Where harm already exists, it is not compounded;*
 - *The positive relationships that exist between existing tall buildings and the wider area are not compromised by new tall buildings; and*
 - *Legibility does not become confused and tall landmarks do not begin to compete.”* (Paragraph 6.5)

The London Plan: Spatial Development Strategy for Greater London (March 2021) (Ref 1-5)

- 1.28 The London Plan: Spatial Development Strategy for Greater London was adopted by the Greater London Authority (GLA) in March 2021. The London Plan is the overall strategic plan for London, which sets out the economic, environmental, transport and social framework for development over the next 25 years. The 2021 London Plan is a new London Plan, as such it is not an alteration of update of the previous versions of the Plan, or that which was included in the assessment of the previous THVIA. It contains several policies that are of relevance to the Proposed Development.
- 1.29 The following policies are relevant to this assessment and relevant elements of their content are summarised below:
- Chapter 3 Design:
- Policy D1 London’s form, character and capacity for growth
 - Policy D3 Optimising site capacity through the design-led approach
 - Policy D4 Delivering good design
 - Policy D8 Public realm
 - Policy D9 Tall buildings
- Chapter 7 Heritage and Culture:
- Policy HC1 Heritage conservation and growth
 - Policy HC3 Strategic and Local Views
- 1.30 **Policy D1 London’s form, character and capacity for growth** notes that Boroughs should undertake area assessments to define the characteristics, qualities and value of different places within the plan area. This includes assessment of urban form and structure (for example townscape, block pattern, urban grain, extent of frontages, building heights and density), heritage assets, views and landmarks.
- 1.31 **Policy D3 Optimising site capacity through the design-led approach** states that *“All development must make the best use of land by following a design-led approach that optimises the capacity of sites, including site allocations. Optimising site capacity means ensuring that development is of the most appropriate form and land use for the site. The design-led approach requires consideration of design options to determine the most appropriate form of development that responds to a site’s context and capacity for growth, and existing and planned supporting infrastructure capacity”* and *“Higher density developments should generally be promoted in locations that are well connected to jobs, services, infrastructure and amenities by public transport, walking and cycling”* and continues that development proposals should *“enhance local context by delivering buildings and spaces that positively respond to local distinctiveness through their layout, orientation, scale, appearance and shape, with due regard to existing and emerging street hierarchy, building types, forms and proportions”*.

- 1.32 **Policy D4 Delivering good design** states that where appropriate, visual, environmental and movement modelling/ assessments should be undertaken to analyse potential design options for an area, site or development proposal. Design review panels should be used to assess and inform design options early in the planning process. Development proposals referable to the Mayor must have undergone at least one design review early on in their preparation before a planning application is made, if they are above the applicable density in **Policy D6** or propose a building defined as a tall building by the borough or one that is more than 30m in height where there is no local tall building definition. It is important that design quality is maintained throughout the development process from the granting of planning permission to completion of a development so the design quality of development should be protected by having a sufficient level of design information provided as part of the application and conditioning the ongoing involvement of the original design team should be considered.
- 1.33 **Policy D8 Public realm** states that development proposals should ensure the public realm is well-designed, safe, accessible, inclusive, attractive, well-connected, related to the local and historic context, and easy to understand, service and maintain. The public realm should be seen as a series of connected routes and spaces that help to define the character of a place. Its design should be based on an understanding of how the public realm in an area functions and creates a sense of place.
- 1.34 **Policy D9 Tall buildings** states that while high density does not need to imply high rise, *“tall buildings can form part of a plan-led approach to facilitating regeneration opportunities and managing future growth, particularly in order to make optimal use of the capacity of sites which are well-connected by public transport and have good access to services and amenities. Tall buildings can help people navigate through the city by providing reference points and emphasising the hierarchy of a place such as main centres of activity, and important street junctions and transport interchanges. Tall buildings that are of exemplary architectural quality, in the right place, can make a positive contribution to London’s cityscape, and many tall buildings have become a valued part of London’s identity. However, they can also have detrimental visual, functional and environmental effects if in inappropriate locations and/or of poor-quality design”* (Paragraph 3.9.1).
- 1.35 The policy states that development plans should define what is considered a tall building for specific localities. The supporting text notes that *“Tall buildings are generally those that are substantially taller than their surroundings and cause a significant change to the skyline.”* (Paragraph 3.9.3). Based on local context, what is considered a tall building will vary but **Policy D9 Part A** states that this should not be less than 6 storeys or 18m from ground floor to the floor level of the uppermost storey. **Policy D9 Part B** states that boroughs should determine if there are locations where tall buildings may be an appropriate form of development. Any such locations and appropriate tall building heights should be identified on maps in development plans.

1.36 Policy D9 part C states that the visual impacts of proposed tall buildings need to be considered in: long range views, in which a new tall building should make a positive contribution to the existing and emerging skyline and not adversely affect local or strategic views; mid-range views in which the proposal should make a positive contribution to the local townscape in terms of legibility proportions and materiality; and immediate close views from the surrounding streets in which the base of the building should have a direct relationship with the human scale and character of the street. *“The function of the base should be to frame the public realm and streetscape, articulate entrances, and help create an attractive and lively public realm which provides a safe, inclusive, interesting, and comfortable pedestrian experience. The base should integrate with the street frontage of adjacent buildings and, where appropriate, enable the building to transition down in height.”* (Paragraph 3.9.8) Whether part of a group or stand-alone, tall buildings should reinforce the spatial hierarchy of the local and wider context and aid legibility and wayfinding. Architectural quality and materials should be of an exemplary standard; *“The higher the building the greater the level of scrutiny that is required of its design.”* (Paragraph 3.9.4) Tall buildings should positively contribute to the character of the area. Proposals should take account of, and avoid harm to, the significance of London’s heritage assets and their settings; proposals resulting in harm will require clear and convincing justification, demonstrating that alternatives have been explored and there are clear public benefits that outweigh that harm. Publicly accessible areas should be incorporated into tall buildings where appropriate, particularly more prominent tall buildings.

1.37 Policy HC1 Heritage conservation and growth states that development proposals affecting heritage assets, and their settings, should conserve their significance, by being sympathetic to the assets’ significance and appreciation within their surroundings. Policy HC3 Strategic and Local Views describes the LVMF SPG (Ref 1-6) and States that the Mayor will, when necessary, review the LVMF SPG. Unlike Policy 7.11 it requests that boroughs clearly identify important local views in Local Plans and strategies; it states that local views should be protected and managed in a similar manner as Strategic Views. Policy HC4 London View Management Framework states that development proposals should not harm, and should seek to make a positive contribution to, the characteristics and composition of Strategic Views and their landmark elements. They should also preserve or enhance viewers’ ability to recognise and to appreciate Strategically Important Landmarks in these views and, where appropriate, protect the silhouette of landmark elements of World Heritage sites as seen from designated viewing places.

Baseline Conditions

1.38 The baseline conditions for the assessment are generally as set out in the October 2017 THVIA, with the following changes: Phases 1 and 2 of the Clarendon Gas Works development have been completed (HGY/2017/3117) and are now seen in the updated baseline photography where visible. Phase 3 of the Clarendon Gas Works site (Zones D and E) is currently under construction, the consented extent of the Phase 3 massing will be shown in pink wireline in the future baseline scenario for each of the views. Updated photography was captured in January 2023 for the assessment of the views in Section 2.0.

Figure 1.1: Phasing Diagram (DAS, page 22)



Assessment Methodology

1.39 The assessment methodology is unchanged from that used in the October 2017 THVIA.

1.40 Eight of the 27 views originally assessed in the October 2017 THVIA have been selected for reassessment in this THVIA to demonstrate the impacts of the proposed RMA application for the detailed design of Plots H1, H2 and H3. The selected views are those in which the Proposed Development would be expected, based on professional judgement, to have potential for revised townscape or visual impacts in comparison to the October 2017 THVIA. The views for reassessment were agreed with LBH officers in early 2023; officers requested two additional views from the original October 2017 application be re-tested and included in this submission; however, it was demonstrated and agreed in pre-application discussion that visibility of the Site would be minimal, or not seen from both of these local viewing positions and as such they were not scoped into the view selection for assessment in this RMA application. These two original views from the October 2017 THVIA (Views 8 and 9) have been included in Appendix A for ease of reference and completeness.

- 1.41 For each viewpoint, the following views have been modelled for assessment:
1. Future Baseline with Consented Maximum Parameter: the updated baseline photography, with Phase 3 (Zones D and E) of the Clarendon Gasworks under construction shown in pink wireline and the Consented Maximum Parameter for Zones H, F and G-F in blue wireline;
 2. Proposed Development: the Future Baseline and Consented Maximum Parameter (scenario 1) with the Consented Maximum Parameter for Zone H replaced with the Proposed Development shown in rendered form;
 3. Cumulative: the Proposed Development (scenario 2) shown with cumulative schemes in green wireline;
- 1.42 The consented cumulative schemes considered in this assessment are shown in Table 1.1 below. The ‘Land off Brook Road, Mayes Road’ scheme (Planning Reference: HGY/2017/2886) and the ‘Former Petrol Filling Station, 76 Mayes Road’ scheme (Planning Reference: HGY/2021/3030) both received planning permission following the consent of Clarendon Gas Works, but do not meet the criteria for a committed development scheme as set out in ES Chapter 3: EIA Methodology of the October 2017 ES. However, for completeness they have been included in the prepared and assessed AVRs for this THVIA assessment. The inclusion of these two cumulative schemes presents no change to the cumulative effects presented within the October 2017 THVIA.

Table 1.1: Cumulative Schemes

Name and planning reference	Description	Status
Chocolate Factory Planning reference: HGY/2017/3020	Mixed use development including partial demolition and extension of the Chocolate Factory buildings and construction of four new building ranging in height from 3 to 18 storeys.	Approved March 2018.
Land off Brook Road, Mayes Road Planning reference: HGY/2017/2886	Demolition of existing building and erection of a six to nine storey residential building, medical centre, retail and office unit.	Approved March 2018.
Former Petrol Filling Station, 76 Mayes Road, London, N22 6SY (Caxton Square) Planning reference: HGY/2020/0795 NMA: HGY/2021/3030	Redevelopment to provide a single building of between four and nine storeys, including residential and commercial uses.	Approved May 2021. (NMA approved April 2022).

2 The Proposed Development

Consented Maximum Parameter

- 2.1 The Consented Maximum Parameter for Zone H, originally assessed in the October 2017 THVIA was extended and consented in 2021.
- 2.2 Within the maximum parameter for Zone H some tolerance at particular edge conditions is allowed. To the west of Plot H1, the Maximum Building Extent has a tolerance of +/- 5m. The edges of Plots H2 and H3 which front the new public square have a Maximum Building Extent tolerance of +/- 7m. Finally, the southern edge of Plot H3 the Maximum Building Extent has a tolerance of +/- 5m. All other edges of Zone H are without tolerance and lie on the Development Zone Boundary. The Maximum Building Extent excludes balconies.
- 2.3 Maximum heights for Zone F include parapets but exclude uninhabitable requirements such as lift overruns, plant areas and flues.
- 2.4 As described in detail in Section 10 of the DAS the Proposed Development complies with the consented outline parameters and consented design code.

Figure. 2.1: Extract from Parameter Plan 5 (2021): Maximum and Minimum Building Extents for outline development zones.



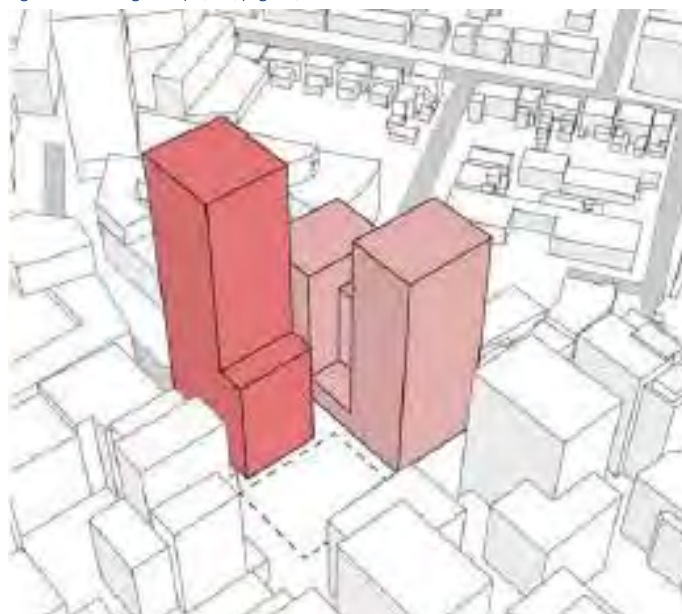
Figure 2.2: Maximum building height envelope looking from the south-west (DAS, page 23)



Detailed Design of the Proposed Development

- 2.5 The Proposed Development is described in detail by the architects, Sheppard Robson in the Design and Access Statement (DAS), which also includes a detailed explanation of the design vision, process and evolution. The description in the following section is written to inform the baseline for the following Views Assessment, with focus on the key relevant aspects of the detailed design only.
- 2.6 Zone H constitutes Phase 4 of the Clarendon Gas Works redevelopment and is part of the Northern Quarter of the masterplan which also includes Zone E in Phase 3. Zone H comprises three buildings at the north-eastern corner of the Clarendon Gas Works Site, Plots H1, H2 and H3.
- 2.7 Zone H is the gateway to the masterplan site and is therefore a symbolic marker for this regeneration. Zone H is located within the Urban Quarter of the masterplan, which will be the densest and most commercially active part of the neighbourhood. This complements LBH's vision for the north-eastern part of the masterplan to feed into the new Civic Boulevard to the north along Coburg Road. This Urban Quarter character would be derived from the commercially active ground floors across Zone H.
- 2.8 The Consented Maximum Parameter allows for one taller, landmark building within the grouping, and two lower buildings. Plot H1 would be the tallest element, a standalone tower of 27 storeys. Plots H2 (17 storeys) and H3 (20 storeys) would form a lower pair of buildings connected by a 14-storey link.

Figure 2.3: Massing concept (DAS, page 34)



- 2.9 Plot H1 has been designed as a landmark building visible within Wood Green. Its height would signal the regeneration of the Gas Works, and act as a way finder for the Urban Quarter, the Civic Boulevard, and the new public square to the south-west of Zone H. In contrast to the material palette of much of the wider masterplan, including Plots H2 and H3, Plot H1 would be clad in a pale-coloured grid with contrasting dark grey inset panels forming a secondary recessed layer behind. The double height base of the building would ground it effectively and express its active use, particularly to the new public square. A shoulder above eighth floor would address the new public square providing a terrace overlooking the square to the communal amenity level. The lower residential floors would be expressed by a tight grid which would be extended above the eighth floor shoulder to accentuate the verticality of the building to three storeys marking the intermediate communal amenity level and two storeys above that. Recessed corner balconies would soften the form on the skyline and increase the perception of slenderness. The crown of Plot H1 would be strongly articulated to provide a legible termination increasing the sense of verticality and slenderness.
- 2.10 Plots H2 and H3 would form a pair of lower-scale tall buildings, mediating between the height of Plot H1 and the lower scale of other phases of the masterplan. They would both be clad in a brick, contrasting with the lighter materiality of Plot H1, but with pale horizontal bands to compliment the treatment of Plot H1. The link block between Plots H2 and H3 would also be clad in brick but in a darker tone to appear recessive to the tall buildings either side and accentuate their verticality. A double height crown would top both Plots H2 and H3. This would be subtly expressed by removal of horizontal banding, and deep recessed balconies, which provides a clear termination to these buildings, but contrasts with the stronger articulation of the landmark Plot H1.
- 2.11 Public realm is an important element of the Zone H Proposed Development, addressing three separate conditions: 'The Square' and 'The Arcade' and the LBH 'Civic Boulevard' along Coburg Road. The Square is the main plaza to the south of the three blocks, fronted by Plots H1 and H3. The Arcade is a route from Coburg Road to the new square between Plots H1 and H2; the Civic Boulevard connects Wood Green Station to the High Street and Alexandra Park and Palace. There will be further activation of the Civic Boulevard along New Lane, between Plot H2 and Phase 5, and transport and servicing connections along Silsoe Road. At the base of Zone H, consistent white materiality across the base of H1 and H2 on Coburg Road would create synergy between the various elements. Likewise, white at the bases fronting the new public square would creating cohesiveness across the public realm facing lower levels of each of the Zone H buildings.

3 Assessment

Demolition and Construction

- 3.1 The effects of demolition and construction would remain unchanged from those reported in the October 2017 THVIA.

The Completed Proposed Development

Built Heritage Assessment

- 3.2 The built heritage assessment in the October 2017 THVIA included assessment of five listed buildings and three locally listed buildings within a 250m study radius. Six conservation areas were assessed within a 500m study radius.

Alexandra Palace (Grade II)

- 3.3 Views 7 and 10, both borough views of Alexandra Palace (Local Plan Views 21 and 20 respectively), have been included in this re-assessment.
- 3.4 In the October 2017 THVIA it was concluded that there would be a 'moderate, neutral' effect on the heritage significance of Alexandra Palace. This judgement concluded that "[7.5] *The Proposed Development does not affect any elements of setting that contribute to the significance of Alexandra Palace, no harm is caused and the setting of Alexandra Palace is preserved*". The maximum parameter envelope for Zone H assessed in the October 2017 THVIA showed some occlusion of the silhouette of Alexandra Palace in views from Downhills Park Road and Watermead Way railway bridge designated in the LBH Local Plan (Views 7 and 10). The consented amended maximum parameter envelope for Zone H slightly increased the height of Zone H but did not materially increase the level of occlusion of the silhouette of Alexandra Palace in LBH View 10 from Watermead Way railway bridge. While the view from Watermead Way railway bridge is a designated borough view, it is an incidental view of Alexandra Palace seen at a distance of almost 4km and heavily screened by foreground foliage even in winter.
- 3.5 As shown in View 7 (LBH Local Plan View 21) the Proposed Development would not block any part of the silhouette of Alexandra Palace on the distant skyline. The top of plot H1 would be visible complementing the rhythm and proportions of the foreground chimney stacks of the houses on Downhills Park Road and would appear peripheral to the silhouette of Alexandra Palace on the more distant skyline. While it would change the setting of the heritage asset it would not detract from its appreciation in this view. As shown in View 10 (LBH Local Plan View 20 from Watermead Way railway bridge) the Proposed Development, as does the consented maximum parameter envelope, would partially block the silhouette of Alexandra Palace. However, the view from this location is an incidental one and even in winter is heavily screened. The clear legibility of Alexandra Palace in this view is questionable. The partial loss of the silhouette of Alexandra Palace from Watermead Way railway bridge would have a slight impact on the setting of the heritage asset but, due to the poor quality of this view, it is not considered to be inherently harmful in NPPF terms to the ability to appreciate the significance of the heritage asset.

- 3.6 As assessed in the October 2017 THVIA, while the Proposed Development would make a change to the setting of the heritage asset, the Proposed Development would not adversely affect any elements of setting that contribute to the heritage significance of Alexandra Palace. The ability to appreciate the heritage significance of Alexandra Palace would be sustained and not harmed in NPPF terms and assessment made in the October 2017 THVIA remains valid.

Other heritage assets

- 3.7 For all other heritage assets assessed in the October 2017 THVIA the slight increase in scale in comparison to the 2017 maximum parameter envelope assessed and the detail of the architectural treatment proposed would not alter the conclusions reached. The proposed development would sustain and not harm the ability to appreciate the heritage significance of all other heritage assets.

Townscape Assessment

- 3.8 The Townscape Assessment in the October 2017 THVIA considered and assessed four townscape character areas, TCA 1 Infrastructure/ industrial; TCA 2 Wood Green and Tottenham; TCA 3 Hornsey and TCA 4 Alexandra Park. Their assessment was informed by the 27 views in the visual assessment. The conclusions of the October 2017 THVIA, that the Proposed Development would replace, enhance and improve the ordinary townscape remain valid. The emerging new townscape at the Clarendon Gas Works Masterplan Site is already testament to the beneficial impacts of the regeneration. The emerging townscape is one of high quality and a significant improvement on the previous townscape characterised by the former gas holders and industrial buildings. This is captured in the eight views assessed in this addendum. The re-assessment of the selected eight views demonstrates that the detailed designs for Zone H would contribute a well composed high quality group of tall buildings marking the gateway to the development site.

Visual Assessment

- 3.9 Eight views from the 27 included in the October 2017 THVIA have been selected for re-assessment in this THVIA. The selected eight are listed in Table 3.1 below, with the rationale for their selection and inclusion. These views have been agreed at pre-application stage with LBH officers. They include views towards the Site from a variety of directions and distances, selected to include those in which Zone H is likely to be most visible.
- 3.10 During the agreement of the views for re-assessment, LBH officers requested the testing of further local views. Views 8 and 9 (View 8 Freedom Road, adjacent to Broadwater Farm Community Centre and View 9 Lordship Lane, at junction with Broadwater Road, close to Bruce Castle) were tested. Testing confirmed that the Proposed Development would not be visible in View 9 and would have a negligible impact on View 8, at a distance from the silhouette of Alexandra Palace. These additional views were therefore scoped out of this assessment.

- 3.11 Each of the eight views of the Proposed Development has been modelled a full verified render by visualiser Cityscape to give a realistic demonstration of the effects of the detailed architectural treatment of the Proposed Development in its townscape context. The verified views have also informed the built heritage and townscape assessment.

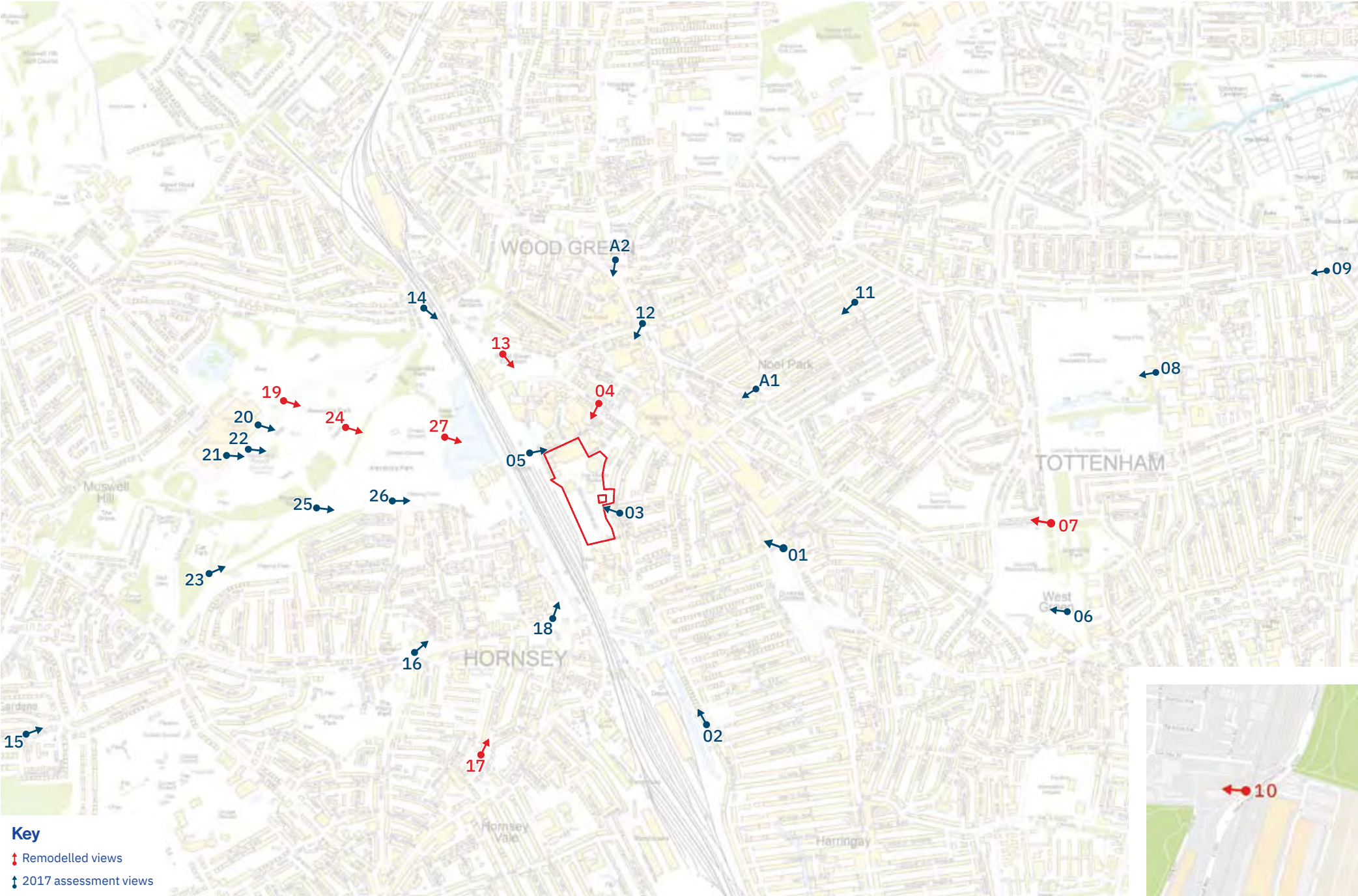
Table 3.1: Table of views selected for re-assessment

View	View Location	Reason for inclusion in RMA Addendum
4	Mayes Road, at junction with Coburg Road	Close range view of the Proposed Development, illustrating an important local approach to Zone H.
7	Downhills Park Road, at park entrance	LBH Local Plan View 21: Downhills Park Road to Alexandra Palace.
10	Watermead Way railway bridge	LBH Local Plan View 20: Watermead Way railway bridge to Alexandra Palace.
13	Wood Green Common – north corner, adjacent to playground	The Proposed Development would be clearly visible, with views towards the three blocks rising above the treeline in views across the common.
17	Hillfield Avenue, to the north of junction with Harold Road	Clear view of the Proposed Development on the skyline from within the Hillfield Conservation Area.
19	Alexandra Palace - road down to Wood Green	Representative view from within the Alexandra Palace and Park Conservation Area, with unobscured views from the elevated park towards the Site, in which the Proposed Development would be at its most visible
24	Alexandra Palace, mid-level footpath	Representative view from within the Alexandra Palace and Park Conservation Area, with views from the elevated park towards the Site.
27	Reservoir	View from within the Alexandra Palace and Park Conservation Area, across the Hornsey Water Works Conservation Area proving a close local view of the Proposed Development

Table 3.2: Visual Assessment Views and Views Data

View	Location	Page	Style	Render / Wireline	Verified	Ref	OS-E	OS-N	Height (AOD)	Heading	Lens	Field of View	Film	Date	Time
4	Coburg Road, looking south west, at junction with Mayes Road	15	AVR3	Render	Yes	D26997	530876.718	190132.490	23.725	214°	24mm	74	Digital	21/01/23	09:32
7	Entrance to Downhills Park	17	AVR3	Render	Yes	D26974	532437.5	189723.173	26.425	274°	50mm	40	Digital	17/01/23	13:47
10	Watermead Way railway bridge	19	AVR3	Render	Yes	D26977	534561.521	190023.685	19.117	268°	50mm	40	Digital	12/01/23	15:28
13	Wood Green Common – from north corner, adjacent to play ground	21	AVR3	Render	Yes	D26978	530526.251	190331.118	30.537	152°	24mm	74	Digital	15/01/23	09:41
17	Hillfield Avenue	23	AVR3	Render	Yes	D26979	530483.976	189018.812	48.898	20°	24mm	74	Digital	17/01/23	13:13
19	Alexandra Palace – road down to Wood Green	25	AVR3	Render	Yes	D26980	529793.136	190155.885	86.686	101°	24mm	74	Digital	17/01/23	14:30
24	Alexandra Palace footpath junction	27	AVR3	Render	Yes	D26981	529968.068	190090.250	57.531	94°	24mm	74	Digital	15/01/23	11:16
27	Alexandra Palace Park East – Reservoir	29	AVR3	Render	Yes	D26982	530321.876	189991.096	33.219	109°	24mm	74	Digital	15/01/23	12:30

Map of views for assessment



View 4 Mayes Road, at junction with Coburg Road

Page 15

View 7 Downhills Park Road, at park entrance

Page 17

View 10 Watermead Way railway bridge

Page 19

View 13 Wood Green Common – north corner, adjacent to playground

Page 21

View 17 Hillfield Avenue, to the north of junction with Harold Road

Page 23

View 19 Alexandra Palace – road down to Wood Green

Page 25

View 24 Alexandra Palace, mid-level footpath



Page 27

View 27 Reservoir



Page 29

View 04

Mayes Road, at junction with Coburg Road

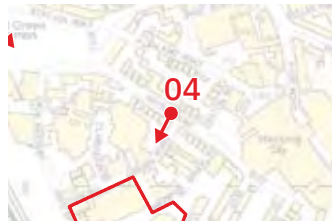
Future Baseline with Consented Maximum Parameter



Future Baseline with Consented Maximum Parameter

This viewing position is on Mayes Road, at the junction with Coburg Road, looking south-west and directly towards the Site. To the left of the view is a 19th century, semi-detached house which forms part of a larger group of comparable development lining both sides of Mayes Road. The Duke of Edinburgh public house to the right is a locally listed building and provides a strong corner to the junction between Coburg Road and Mayes Road. The urban grain and scale of the existing development changes to the south of Mayes Road with proximity to the railway line. Coburg Road, which extends away from the viewing position, is lined by industrial buildings associated with the former Chocolate Factory including, a substantial five storey block, seen to the right of the road, and the buildings of the Olympia Industrial Estate, visible at the end of the road. The Consented Maximum Parameter for Zone H is framed by the existing buildings in the foreground to either side of the junction with Coburg Road, with its tallest scale to the right hand side. To the right of Zone H is a glimpse of the Consented Maximum Parameter of Zone G-J, beyond. This view is an important approach to the Site and the visibility of Zone H will mark the gateway to the wider redeveloped Clarendon Gas Works development. As assessed in the October 2017 THVIA, the view has a **low** sensitivity to change.

View location



Camera position



Proposed Development

The focus of this view would be transformed by the Proposed Zone H buildings. As described, in relation to the Consented Maximum Parameter for Zone H, this will be the main entry point into the Proposed Development from Wood Green and will be the key connection into the Cultural Quarter. Zone H would terminate the views from this prominent entry to the wider Clarendon Gas Works site, with the closer Plot H2 in red brick, and beyond it the taller Plot H1, fronting Coburg Road. The taller scale of Plot H1 would mark the route from Coburg Road into the new public square and the wider masterplan. In this close view, the double height entrance at the base of Plot H2 is visible, the taller scale of the base and its paler concrete materiality grounding the tall building and highlighting the activation provided to Coburg Road by the Zone H buildings; moving forward into the view along Coburg Road this would become more apparent.

Proposed Development



Although clearly taller than the existing buildings on Mayes Road, the Proposed Development would sit comfortably in relation to the foreground terraces, primarily visible at this gap in the existing townscape and not prominent from other parts of Mayes Road. It would provide a new focus to the route to the Clarendon Gas Works site along Coburg Road, whilst also providing a new focus for Wood Green, giving status and density to the route through to the pedestrian tunnel under the railway. Despite the taller character of the Proposed Development, the buildings would not dominate and instead appear as a well composed cluster of landmark buildings, compliant with the Consented Maximum Parameter, marking the key approach route along Coburg Road. The varying heights and material palettes between the individual buildings would provide a sense of separation and hierarchy adding legibility and visual richness to the skyline. The architectural treatment, materiality and articulation of the Proposed Development would be clear in this close view, allowing for an appreciation of base, middle and top and the way in which the proposed architectural treatment, for example the horizontal banding and inset corner balconies, would tie together the individual elements of Zone H to form a rich and harmonious whole. The two lower blocks, H2 and H3 in the foreground, would be in brick, echoing the warm tone of the materiality of the existing context, and mediating between the tallest landmark Plot H1 and other parts of the wider masterplan. The Proposed Development would comply with the Consented Maximum Parameter; its effect on the view would remain as assessed in the October 2017 THVIA.

Significance of Effect: major, beneficial

Cumulative

Part of the Consented Maximum Parameter for Zones G and J is seen to the right of Zone H. This is the Consented Maximum Parameter envelope and not a proposed building at this stage, the detailed design of this zone is yet to be carried out. There are no cumulative schemes visible in this view. The cumulative effect on the view would remain as assessed in the October 2017 THVIA.

Significance of Effect: none

Cumulative

View 4

Mayes Road, at junction with Coburg Road



24mm – 36.9° 35mm – 27.2° 50mm – 19.8° Image scaling factor = 46% at A3, 130% at A0 50mm – 19.8° 35mm – 27.2° 24mm – 36.9°

View 07

Downhills Park Road, at park entrance

Future Baseline with Consented Maximum Parameter



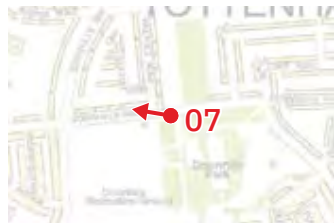
Proposed Development



Future Baseline with Consented Maximum Parameter

This viewing position is on Downhills Park Road, at the entrance to Downhill Park looking west towards the Site. The view is View 21 in LBH's Local Plan. The viewing position is on the south side of the road, at a pedestrian crossing. To the left of the view is the boundary to the park; the trees lining its periphery serve to partially screen views of the west end of Downhills Park Road and the distant hills. Opposite, to the right, are early 20th-century terraced houses. The wider area, on all sides of Downhills Park is characterised by terraced housing. The distant focus of the view is the heavily treed Alexandra Park, with Alexandra Palace partially visible on the ridge, above and within the roofline and chimney stacks to the centre right. The rose window, the two domes, front elevation terminating in square towers, and the lattice girder mast are visible on the skyline. Although Alexandra Palace is instantly recognisable by its distinctive profile on the skyline, its clear visibility is partly obscured by chimneys and the rising terrace. The completed mid-rise Phases 1 and 2 of the Clarendon Gas Works site are visible in the updated photography in the middle ground between Downhills Park Road and Alexandra Park as a secondary layer of the townscape to the left and below the skyline of Alexandra Palace. Represented in pink wireline is the consented RMA massing of buildings in Zones D and E, which are Phase 3 of the Clarendon Gas Works redevelopment, under construction. These buildings will be just visible within the roofline and chimneys of the foreground terraces. Moving forwards westwards along the road into the view and crossing to the northern pavement, Alexandra Palace recedes in the view and is screened by the foreground terraces. The Consented Maximum Parameter rises above the roofline of the foreground terraces and sits slightly in front of the right-hand dome of Alexandra Palace when viewed from this position. Due to the status of this position as a designated Local View of Alexandra Palace, the view has a **high** sensitivity to change.

View location



Camera position



Proposed Development

The upper storeys of Plot H1 of the Proposed Development would be visible, sitting within the chimneys and roofline of the foreground terraces of Downhill Park Road. Plot H1 would appear, partly obscured by a foreground chimney, on the distant skyline to the right of Alexandra Palace. It would not obscure any part of Alexandra Palace when viewed from this position, and due to its integration with the rhythm of chimney stacks in the foreground, nor would it detract from the views towards the listed building. A sliver of Plot H3 would be seen to the left of the same chimney within the Consented Maximum Parameter in the foreground of the right-hand dome of Alexandra Palace but this level of visibility would not be noticeable and would not obscure the curved silhouette of the dome which would remain legible on the distant skyline. The Proposed Development would therefore have a negligible impact on the visibility of Alexandra Palace as seen on the skyline. The ability to recognise and appreciate the Grade II listed landmark on the skyline would be preserved. The Proposed Development would comply with the Consented Maximum Parameter; its effect on the view would remain as assessed in the October 2017 THVIA.

Significance of Effect: moderate, neutral

Cumulative

Part of the Consented Maximum Parameter for Zones G and J is seen to the left of the Proposed Development in the foreground of Alexandra Palace. This is the Consented Maximum Parameter envelope and not a proposed building at this stage, the detailed design of this zone is yet to be carried out. There are no cumulative schemes visible in the view, and therefore no cumulative effect. The cumulative effect on the view would remain as assessed in the October 2017 THVIA.

Significance of Effect: none

Cumulative

View 7

Downhills Park Road, at park entrance



50mm – 19.8°

Image scaling factor = 97% at A3, 138% at A2

50mm – 19.8°

View 10

Watermead Way railway bridge

Summer reference photography



View location



Camera position



Future Baseline with Consented Maximum Parameter



Future Baseline with Consented Maximum Parameter

This view is taken from the Watermead Way railway bridge in Tottenham, looking west towards the Site. The view is View 20 in LBH's Local Plan. In the foreground of the view are evergreen trees which line the east side of the Lee Valley Technopark. The deciduous trees in the middle ground are in the north-east corner of Down Lane Park, which occupies most of the view. Terraced houses are just visible through the trees on the west side of the park and mark the transition from the light-industrial landscape around Watermead Way and the railway line, to the residential development further to the west. Visible on the horizon to the right is a large residential tower within the Broadwater Estate. Alexandra Palace is just perceptible on the distant skyline at the centre of the view. Although Alexandra Palace is visible on the skyline, and is the reason for designation of the view, it is a poor view of the Palace: the viewing position is almost 4km away and the view is heavily obscured by layers of middle ground tree cover even in winter conditions. There will be very minimal glimpses of the Phase 3 buildings under construction through the tree cover, but barely perceptible through the trees even in winter. As the summer reference photography demonstrates, in summer Alexandra Palace is not a legible landmark from this position. The Consented Maximum Parameter of Zone H appears in front of the main façade and rose window of Alexandra Palace. The 2021 Consented Maximum Parameter Zone H slightly increased the height of Zone H but did not materially increase the level of occlusion of the silhouette of Alexandra Palace in comparison to that assessed in the October 2017 THVIA. Due to the status of this position as a designated Local View of Alexandra Palace, the view has a **high** sensitivity to change.

Proposed Development



Proposed Development

The Proposed Development would be visible in the far distance, almost 4km away in the foreground of Alexandra Palace on the horizon – visible only in winter when the middle ground trees are free of foliage. The Proposed Development, as the Consented Maximum Parameter does, would block part of the silhouette of Alexandra Palace. However, the view from this location is a poor and now incidental one and even in winter is heavily screened. The visibility of the Proposed Development in front of Alexandra Palace would have a slight impact on the composition of the view but as the view has become more screened since its assessment in 2017, the scale of the effect would reduce from moderate to minor. Due to the erosion of the visibility of Alexandra Palace the nature of the effect would be neutral to adverse as assessed in October 2017 THVIA. In summer the Proposed Development would be screened by summer foliage and there would be no effect. The Proposed Development would comply with the Consented Maximum Parameter; its effect on the view has decreased in comparison to the October 2017 THVIA due to tree growth in the middle ground.

Significance of Effect: no effect in summer to minor, neutral to adverse in winter.

Cumulative

There are no cumulative schemes visible in the view, and therefore no cumulative effect. The green wireline shows that the tallest block of the Chocolate Factory development would be contained within the tree line, to the right of the Proposed Development with no material visibility in the view. The cumulative effect on the view would remain as assessed in the October 2017 THVIA.

Significance of Effect: none.

Cumulative

View 10

Watermead Way railway bridge



50mm – 19.8°

Image scaling factor = 97% at A3, 138% at A2

50mm – 19.8°

View 13

Wood Green Common – north corner, adjacent to playground

Future Baseline with Consented Maximum Parameter



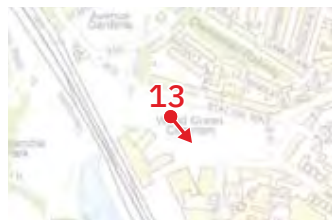
Proposed Development



Future Baseline with Consented Maximum Parameter

This view is taken from the north corner of Wood Green Common, adjacent to the playground. The viewing position is within the Wood Green Common Conservation Area. The foreground of the view shows Wood Green Common, an open, public space, fringed on the north and east side by mature trees. The trees on the left of the view surround Barratt Gardens. In the middle ground is the park's southern border, which is marked by a brick boundary wall, and lined by a partial avenue of trees which soften views of the development beyond. From this position, visibility of the existing development to the south of the common is seen in two distinct groups; to the right is Heartlands High School, a recent, five storey, building which rises up beyond the boundary wall, and the cluster of largely historic and locally listed buildings seen through the gap in the trees to the centre left of the view. The latter includes the Decorium, the locally listed Alexandra Primary School and the five storey white Chocolate Factory building. Currently under construction seen beyond them is Phase 3 of Clarendon Gas Works Masterplan (Zones D and E), shown in pink wireline. The Consented Maximum Parameter in blue wireline occupies the centre of this view and introduces a new townscape element in two groups seen from this position: to the left the taller Zone H, and to the right, the lower mid-rise Zone G-J, of the Clarendon Gas Works Masterplan. As assessed in the October 2017 THVIA, the view has a **high** sensitivity to change.

View location



Camera position



Proposed Development

The Proposed Development would be clearly visible rising above the existing Chocolate Factory buildings, at the centre of the view making a major change to the composition of the view, but it is change as envisaged in the emerging AAP: visibility from here is a condition of the Development Site. As set out in the design codes (DC2.3), the taller elements of the outline Proposed Development would be read as independent residential towers. The varied heights of the buildings ensure that they would not coalesce in this view but the Proposed Development would appear as a coherent cluster of individual towers, adding interest to the skyline and marking the new homes and public uses that the regeneration of the gasworks site will provide. Plot H1 would be a primary landmark in this view, the lighter material palette, and the strongly articulated crown of the building, highlighting its status as the focal point of the cluster of three buildings.

To its left the lower Plots H2 and H3 blocks in brick would complement the materiality of the historic buildings in the foreground. The Proposed Development would comply with the Consented Maximum Parameter; its effect on the view would remain as assessed in the October 2017 THVIA..

Significance of Effect: major, beneficial.

Cumulative

Part of the Consented Maximum Parameter for Zones G and J would be seen to the right of the Proposed Development. This is the Consented Maximum Parameter envelope and not a proposed building at this stage, the detailed design of this zone is yet to be carried out. The Chocolate Factory development seen in the foreground of the Proposed Development, has an equivalent scale to that of the Clarendon Gasworks Masterplan, and is further representation of the regeneration aims of the emerging AAP. It would further contribute to the layered townscape composition of the cluster of taller buildings seen in the backdrop to Wood Green Common and would increase the visual impact on the composition of the view though not the scale of the effect, which is already major. The Caxton Square building on the far left of this view and the buildings at Brook Road, also seen in green wireline within the tree cover to the left of the Proposed, both add to the overall layering of the townscape in the vicinity of Wood Green Common, these buildings would only be glimpsed within the treeline in true winter conditions. The cumulative effect on the view would remain as assessed in the October 2017 THVIA.

Significance of Effect: major, beneficial.