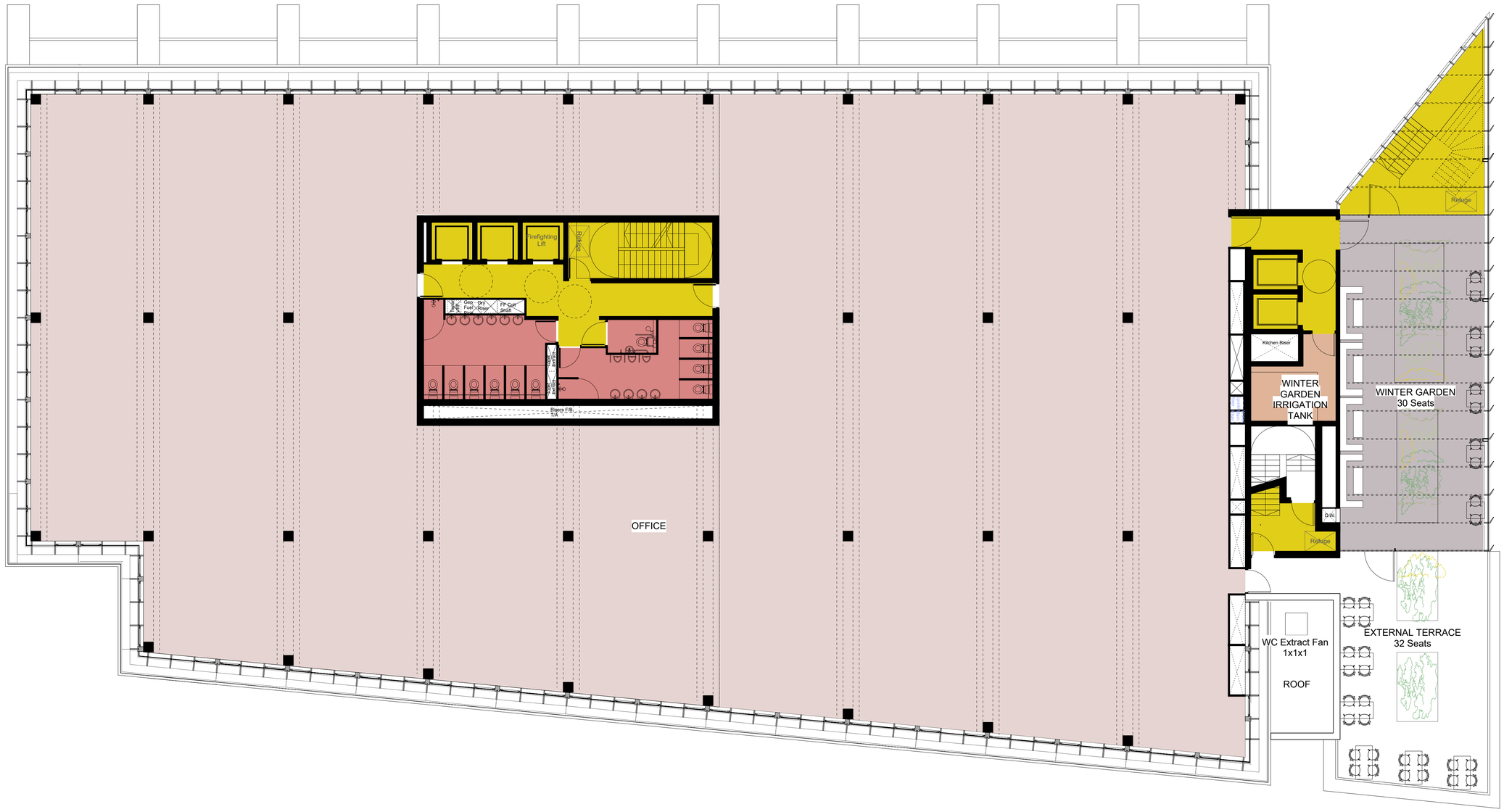

Key				Revision	Date	Description
Retail		Circulation				
Morrisons Store		Plant				
Offices		WC				
Restaurant/Cafe		Kitchen/Back of House				
Winter Garden		Substation				
Morrisons Warehouse		Bin Store				
Morrisons Staff		Restrictive Covenant				

Notes

· SIGNAGE WORDING AND GRAPHICS SHOWN ARE INDICATIVE; EXACT SIGNAGE PROPOSALS TO BE SUBMITTED BY INDIVIDUAL RETAILER. LOCATIONS AND APPROXIMATE SIZES ARE AS SHOWN.
· SURVEY TO BE CARRIED OUT TO DETERMINE EXACT LOCATIONS OF BELOW GROUND SERVICE ROUTES.
· DEVELOPED PTROL FILLING STATION PROPOSALS TO BE APPROVED BY THE PETROLEUM OFFICERS OF THE LONDON FIRE BRIGADE.
· DRAWINGS FOR PURPOSE OF PLANNING APPROVAL ASSESSMENT ONLY.

0 1 2.5m

N

Níall McLaughlin Architects

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JOB: 1605 - Camden Goods Yard: Petrol Filling Station Site
CLIENT: Morrisons & Barratt Homes

SCALE: 1:100 @ A1
DATE FIRST ISSUED: 30.06.2017

DRAWING: Proposed Fourth Floor Plan

REFERENCE: 1605-PL-104
REVISION: -

STATUS: PLANNING

Key				Revision	Date	Description
Retail		Circulation				
Morrisons Store		Plant				
Offices		WC				
Restaurant/Cafe		Kitchen/Back of House				
Winter Garden		Substation				
Morrisons Warehouse		Bin Store				
Morrisons Staff		Restrictive Covenant				

Notes

· SIGNAGE WORDING AND GRAPHICS SHOWN ARE INDICATIVE; EXACT SIGNAGE PROPOSALS TO BE SUBMITTED BY INDIVIDUAL RETAILER. LOCATIONS AND APPROXIMATE SIZES ARE AS SHOWN.
· SURVEY TO BE CARRIED OUT TO DETERMINE EXACT LOCATIONS OF BELOW GROUND SERVICE ROUTES.
· DEVELOPED PTROL FILLING STATION PROPOSALS TO BE APPROVED BY THE PETROLEUM OFFICERS OF THE LONDON FIRE BRIGADE.
· DRAWINGS FOR PURPOSE OF PLANNING APPROVAL ASSESSMENT ONLY.

0 1 2.5m

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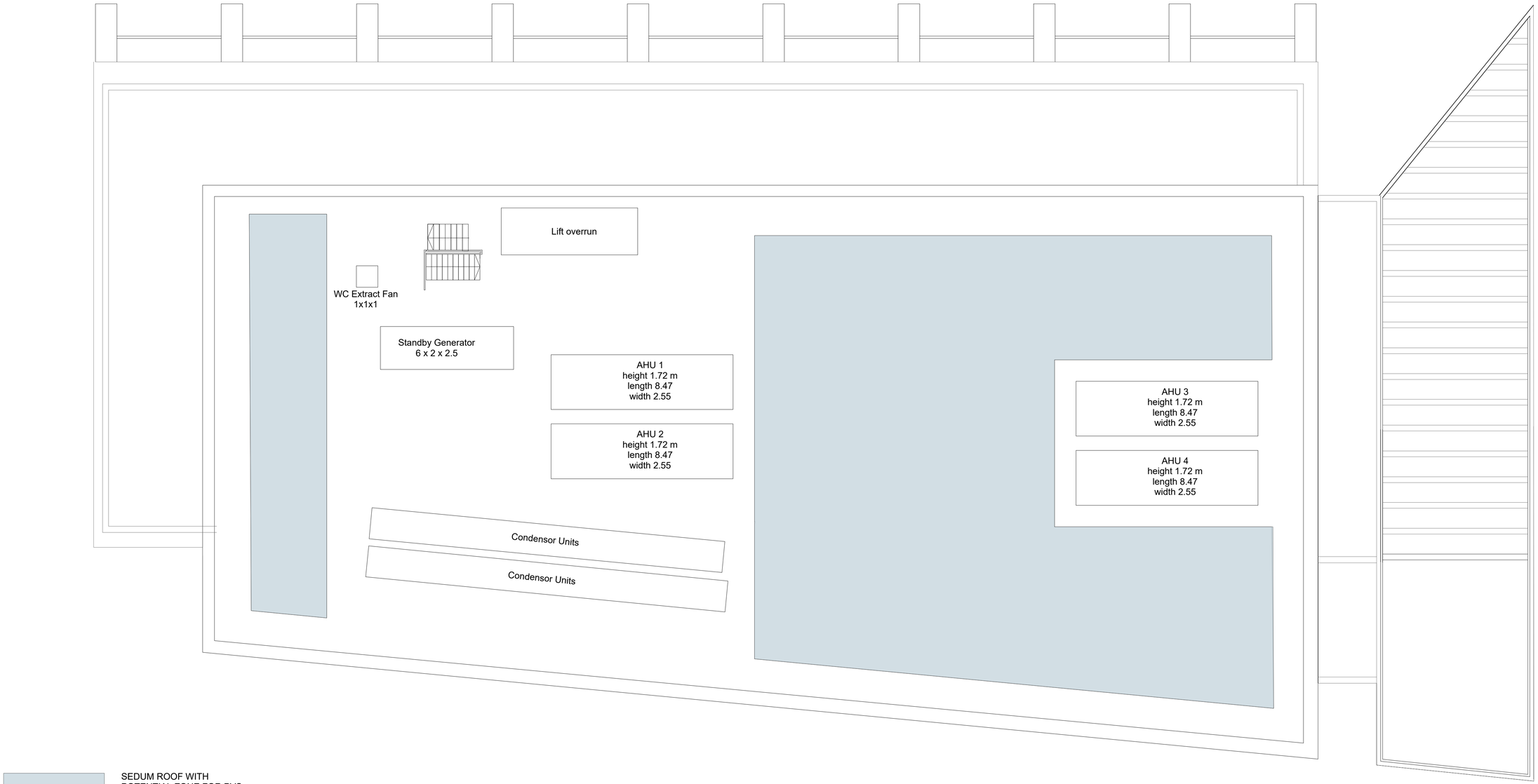
JOB: 1605 - Camden Goods Yard: Petrol Filling Station Site
CLIENT: Morrisons & Barratt Homes

SCALE: 1:100 @ A1
DATE FIRST ISSUED: 30.06.2017

DRAWING: Proposed Fifth Floor Plan

REFERENCE: 1605-PL-105
REVISION: -

STATUS: PLANNING



SEDUM ROOF WITH
POTENTIAL ZONE FOR PVS -
APPROX 580 SQM

Key				Revision	Date	Description
Retail	Circulation					
Morrisons Store	Plant					
Offices	WC					
Restaurant/Cafe	Kitchen/Back of House					
Winter Garden	Substation					
Morrisons Warehouse	Bin Store					
Morrisons Staff	Restrictive Covenant					

Notes

· SIGNAGE WORDING AND GRAPHICS SHOWN ARE INDICATIVE; EXACT SIGNAGE PROPOSALS TO BE SUBMITTED BY INDIVIDUAL RETAILER. LOCATIONS AND APPROXIMATE SIZES ARE AS SHOWN.
· SURVEY TO BE CARRIED OUT TO DETERMINE EXACT LOCATIONS OF BELOW GROUND SERVICE ROUTES.
· DEVELOPED PTROL FILLING STATION PROPOSALS TO BE APPROVED BY THE PETROLEUM OFFICERS OF THE LONDON FIRE BRIGADE.
· DRAWINGS FOR PURPOSE OF PLANNING APPROVAL ASSESSMENT ONLY.

0 1 2.5m

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JOB: 1605 - Camden Goods Yard: Petrol Filling Station Site
CLIENT: Morrisons & Barratt Homes

SCALE: 1:100 @ A1
DATE FIRST ISSUED: 30.06.2017

DRAWING: Proposed Sixth Floor/Roof Plan

REFERENCE: 1605-PL-106
REVISION: -

STATUS: PLANNING

Appendix C
Latest Plans

NOTE

Structure and Landscape are indicative only.
Please refer to each discipline's drawings for details.

0 2.5 5 10m

DATE	STATUS	REV	DESCRIPTION	CHK
16.08.22	S0	P1	FOR PLANNING	ME

ARCHITECT
MAKOWER ARCHITECTS
24–26 Great Suffolk Street
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telephone +44 (0)20 7100 5550
enquiries@makowerarchitects.com

CLIENT
St George

KEY PLAN

NORTH

CAMDEN GOODS YARD
THE JUNIPER BUILDING

-CGY-MAK-XX-00-DR-A-02-150

Proposed Site Plan

SCALE 1 : 250 @ A1
REVISION P1

BUS STOP

BUS STOP

CHALK FARM ROAD

LOOK LEFT

YOUTH SPACE

RETAIL

RETAIL

RETAIL

MAIN LOBBY CAFE ENTRANCE

MAIN LOBBY ENTRANCE

CYCLE ENTRANCE

LOBBY CAFE

LOBBY

STAIR

21p FF

21p PASS

21p PASS

MEZZ LIFT

Visitors WC

MORRISONS RETAIL

376 m²

EVAC

18 P GOODS/PASS LIFT

13 P FIREFIGHTING LIFT (adjacent entry)

DRY RISER

Circulation - 2nd Core

STAIR

RETAIL

OFFICE

SECURITY/FM

3 WC

Refuse

LOADING BAY

Refuse

LV Switch Room

LV Switch Room

Plant/BOH

UP

Life Safety Room

Server Room

Alternative Telecom

Tank Room and Pump Room

UKPN Substation Room

Stair

EV CHARGING

Platform Lift

EXTERNAL TERRACE

SERVICE YARD

COLOUR LEGEND

- Office
- Morrisons Store
- Lobby Cafe
- Loading Bay
- Main Core/Circulation
- WC/Changing
- Dry Riser Inlet
- External Terrace
- Retail
- Plant
- EV CHARGING
- Core/Circulation - 2nd Core (Shared)
- Refuse

NOTE

Structure and Landscape are indicative only.
Please refer to each discipline's drawings for details.

0 1 2 5 m

DATE	STATUS	REV	DESCRIPTION	CHK
16.08.22	S0	P1	FOR PLANNING	ME

ARCHITECT
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CLIENT
St George
Designed for life

KEY PLAN

NORTH

CAMDEN GOODS YARD
THE JUNIPER BUILDING
-CGY-MAK-XX-00-DR-A-06-160
Proposed Ground Floor Plan

SCALE 1 : 100 @ A1
REVISION P1

COLOUR LEGEND

- Office
- Retail
- Cycle Storage
- Plant / BOH
- Main Core/Circulation
- Core/Circulation - 2nd Core (Shared)
- WC/Changing

NOTE

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Structure and Landscape are indicative only.
Please refer to each discipline's drawings for details.

0 1 2 5 m

DATE	STATUS	REV	DESCRIPTION	CHK
16.08.22	S0	P1	FOR PLANNING	ME

ARCHITECT
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St George
Designed for life

KEY PLAN

NORTH

CAMDEN GOODS YARD
THE JUNIPER BUILDING

-CGY-MAK-XX-00-DR-A-06-161

Proposed Ground Floor Mezzanine Plan

SCALE 1 : 100 @ A1
REVISION P1

Appendix D

TRICS Output Data

Ardent Consulting Engineers Suite 207, One Alie Street London E1 8DE Licence No: 437201

Calculation Reference: AUDIT-437201-220616-0626

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : B - RESTAURANTS
MULTI-MODAL TOTAL PEOPLE

Selected regions and areas:
01 GREATER LONDON
BT BRENT 1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 150 to 150 (units: sqm)
Range Selected by User: 150 to 292 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/14 to 24/06/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:
Monday 1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:
Manual count 1 days
Directional ATC Count 0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:
Suburban Area (PPS6 Out of Centre) 1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:
Development Zone 1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:
E(b) 1 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:
50,001 to 100,000 1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:
500,001 or More 1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:
0.6 to 1.0 1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:
Yes 1 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:
5 Very Good 1 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 BT-06-B-01 COFFEE SHOP & RESTAURANT BRENT
EMPIRE WAY
WEMBLEY

Suburban Area (PPS6 Out of Centre)
Development Zone
Total Gross floor area: 150 sqm
Survey date: MONDAY *18/05/15* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
LB-06-B-01	Unsuitable Comparison

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/B - RESTAURANTS
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 3.05

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00									
08:00 - 09:00									
09:00 - 10:00									
10:00 - 11:00	1	150	1.333	1	150	0.000	1	150	1.333
11:00 - 12:00	1	150	2.667	1	150	1.333	1	150	4.000
12:00 - 13:00	1	150	4.000	1	150	1.333	1	150	5.333
13:00 - 14:00	1	150	6.000	1	150	5.333	1	150	11.333
14:00 - 15:00	1	150	0.667	1	150	4.000	1	150	4.667
15:00 - 16:00	1	150	3.333	1	150	4.000	1	150	7.333
16:00 - 17:00	1	150	4.667	1	150	2.000	1	150	6.667
17:00 - 18:00	1	150	6.000	1	150	3.333	1	150	9.333
18:00 - 19:00	1	150	1.333	1	150	5.333	1	150	6.666
19:00 - 20:00	1	150	6.667	1	150	0.000	1	150	6.667
20:00 - 21:00	1	150	2.667	1	150	4.667	1	150	7.334
21:00 - 22:00	1	150	2.000	1	150	7.333	1	150	9.333
22:00 - 23:00	1	150	1.333	1	150	4.000	1	150	5.333
23:00 - 24:00	1	150	0.000	1	150	0.000	1	150	0.000
Total Rates:			42.667			42.665			85.332

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/B - RESTAURANTS
MULTI-MODAL Servicing Vehicles
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00									
08:00 - 09:00									
09:00 - 10:00									
10:00 - 11:00	1	150	0.000	1	150	0.000	1	150	0.000
11:00 - 12:00	1	150	0.000	1	150	0.000	1	150	0.000
12:00 - 13:00	1	150	0.000	1	150	0.000	1	150	0.000
13:00 - 14:00	1	150	0.667	1	150	0.667	1	150	1.334
14:00 - 15:00	1	150	0.000	1	150	0.000	1	150	0.000
15:00 - 16:00	1	150	0.000	1	150	0.000	1	150	0.000
16:00 - 17:00	1	150	0.000	1	150	0.000	1	150	0.000
17:00 - 18:00	1	150	0.000	1	150	0.000	1	150	0.000
18:00 - 19:00	1	150	0.000	1	150	0.000	1	150	0.000
19:00 - 20:00	1	150	0.000	1	150	0.000	1	150	0.000
20:00 - 21:00	1	150	0.000	1	150	0.000	1	150	0.000
21:00 - 22:00	1	150	0.000	1	150	0.000	1	150	0.000
22:00 - 23:00	1	150	0.000	1	150	0.000	1	150	0.000
23:00 - 24:00	1	150	0.000	1	150	0.000	1	150	0.000
Total Rates:			0.667			0.667			1.334

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Calculation Reference: AUDIT-437201-220616-0627

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 01 - RETAIL
Category : O - CONVENIENCE STORE
MULTI-MODAL OGVS

Selected regions and areas:

01	GREATER LONDON		
	KN	KENSINGTON AND CHELSEA	1 days
	WE	WESTMINSTER	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 300 to 550 (units: sqm)
Range Selected by User: 120 to 795 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/14 to 16/11/17

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	2 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Centre	2

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Built-Up Zone	2

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

E(a)	2 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

50,001 to 100,000	1 days
100,001 or More	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

500,001 or More	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Petrol filling station:

Included in the survey count	0 days
Excluded from count or no filling station	2 days

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

Travel Plan:

No	2 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

6b (High) Excellent	2 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	KN-01-O-01 QUEENSWAY BAYSWATER	SAINSBURY'S LOCAL	KENSINGTON AND CHELSEA
	Town Centre Built-Up Zone Total Gross floor area:	300 sqm	
	Survey date: MONDAY	*22/06/15*	*Survey Type: MANUAL*
2	WE-01-O-01 MORTIMER STREET FITZROVIA	SAINSBURY'S LOCAL	WESTMINSTER
	Town Centre Built-Up Zone Total Gross floor area:	550 sqm	
	Survey date: TUESDAY	*23/06/15*	*Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

Ardent Consulting Engineers Suite 207, One Alie Street London E1 8DE Licence No: 437201

TRIP RATE for Land Use 01 - RETAIL/O - CONVENIENCE STORE
MULTI-MODAL OGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	425	0.118	2	425	0.118	2	425	0.236
08:00 - 09:00	2	425	0.000	2	425	0.000	2	425	0.000
09:00 - 10:00	2	425	0.118	2	425	0.118	2	425	0.236
10:00 - 11:00	2	425	0.235	2	425	0.235	2	425	0.470
11:00 - 12:00	2	425	0.000	2	425	0.000	2	425	0.000
12:00 - 13:00	2	425	0.000	2	425	0.000	2	425	0.000
13:00 - 14:00	2	425	0.000	2	425	0.000	2	425	0.000
14:00 - 15:00	2	425	0.000	2	425	0.000	2	425	0.000
15:00 - 16:00	2	425	0.000	2	425	0.000	2	425	0.000
16:00 - 17:00	2	425	0.118	2	425	0.118	2	425	0.236
17:00 - 18:00	2	425	0.118	2	425	0.118	2	425	0.236
18:00 - 19:00	2	425	0.118	2	425	0.118	2	425	0.236
19:00 - 20:00	2	425	0.000	2	425	0.000	2	425	0.000
20:00 - 21:00	2	425	0.000	2	425	0.000	2	425	0.000
21:00 - 22:00	2	425	0.000	2	425	0.000	2	425	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.825			0.825			1.650

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 01 - RETAIL/O - CONVENIENCE STORE
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 46.12

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	425	29.647	2	425	28.706	2	425	58.353
08:00 - 09:00	2	425	40.941	2	425	39.294	2	425	80.235
09:00 - 10:00	2	425	42.588	2	425	44.353	2	425	86.941
10:00 - 11:00	2	425	38.824	2	425	37.412	2	425	76.236
11:00 - 12:00	2	425	38.353	2	425	37.882	2	425	76.235
12:00 - 13:00	2	425	84.941	2	425	83.294	2	425	168.235
13:00 - 14:00	2	425	100.118	2	425	102.941	2	425	203.059
14:00 - 15:00	2	425	59.294	2	425	59.765	2	425	119.059
15:00 - 16:00	2	425	50.588	2	425	49.647	2	425	100.235
16:00 - 17:00	2	425	43.059	2	425	43.765	2	425	86.824
17:00 - 18:00	2	425	50.941	2	425	49.529	2	425	100.470
18:00 - 19:00	2	425	57.059	2	425	58.471	2	425	115.530
19:00 - 20:00	2	425	42.824	2	425	42.235	2	425	85.059
20:00 - 21:00	2	425	37.176	2	425	38.471	2	425	75.647
21:00 - 22:00	2	425	30.235	2	425	29.882	2	425	60.117
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			746.588			745.647			1492.235

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 01 - RETAIL/O - CONVENIENCE STORE
MULTI-MODAL LGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	425	0.118	2	425	0.118	2	425	0.236
08:00 - 09:00	2	425	0.706	2	425	0.706	2	425	1.412
09:00 - 10:00	2	425	0.471	2	425	0.471	2	425	0.942
10:00 - 11:00	2	425	0.706	2	425	0.353	2	425	1.059
11:00 - 12:00	2	425	0.588	2	425	0.588	2	425	1.176
12:00 - 13:00	2	425	0.353	2	425	0.588	2	425	0.941
13:00 - 14:00	2	425	0.353	2	425	0.471	2	425	0.824
14:00 - 15:00	2	425	0.118	2	425	0.118	2	425	0.236
15:00 - 16:00	2	425	0.118	2	425	0.118	2	425	0.236
16:00 - 17:00	2	425	0.118	2	425	0.118	2	425	0.236
17:00 - 18:00	2	425	0.235	2	425	0.235	2	425	0.470
18:00 - 19:00	2	425	0.235	2	425	0.235	2	425	0.470
19:00 - 20:00	2	425	0.000	2	425	0.000	2	425	0.000
20:00 - 21:00	2	425	0.000	2	425	0.000	2	425	0.000
21:00 - 22:00	2	425	0.000	2	425	0.000	2	425	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			4.119			4.119			8.238

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 01 - RETAIL/O - CONVENIENCE STORE
MULTI-MODAL Servicing Vehicles
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	425	0.118	2	425	0.118	2	425	0.236
08:00 - 09:00	2	425	0.000	2	425	0.000	2	425	0.000
09:00 - 10:00	2	425	0.353	2	425	0.353	2	425	0.706
10:00 - 11:00	2	425	0.588	2	425	0.588	2	425	1.176
11:00 - 12:00	2	425	0.000	2	425	0.000	2	425	0.000
12:00 - 13:00	2	425	0.118	2	425	0.118	2	425	0.236
13:00 - 14:00	2	425	0.118	2	425	0.118	2	425	0.236
14:00 - 15:00	2	425	0.000	2	425	0.000	2	425	0.000
15:00 - 16:00	2	425	0.118	2	425	0.118	2	425	0.236
16:00 - 17:00	2	425	0.118	2	425	0.118	2	425	0.236
17:00 - 18:00	2	425	0.118	2	425	0.118	2	425	0.236
18:00 - 19:00	2	425	0.118	2	425	0.118	2	425	0.236
19:00 - 20:00	2	425	0.000	2	425	0.000	2	425	0.000
20:00 - 21:00	2	425	0.000	2	425	0.000	2	425	0.000
21:00 - 22:00	2	425	0.000	2	425	0.000	2	425	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.767			1.767			3.534

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

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Ardent Consulting Engineers Suite 207, One Alie Street London E1 8DE Licence No: 437201

Calculation Reference: AUDIT-437201-220616-0653

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : A - OFFICE
MULTI-MODAL TOTAL VEHICLES

Selected regions and areas:
01 GREATER LONDON
LB LAMBETH 2 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 2667 to 9700 (units: sqm)
Range Selected by User: 2500 to 15000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/14 to 05/11/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:
Monday 1 days
Tuesday 1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:
Manual count 2 days
Directional ATC Count 0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:
Town Centre 1
Edge of Town Centre 1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:
Built-Up Zone 1
High Street 1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:
Not Known 2 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Filter by Site Operations Breakdown:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 500m Range:
All Surveys Included

Population within 1 mile:

50,001 to 100,000	1 days
100,001 or More	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

500,001 or More	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.5 or Less	1 days
0.6 to 1.0	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	2 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

6a Excellent	1 days
6b (High) Excellent	1 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 LB-02-A-01 START UP OFFICES & STUDIOS LAMBETH
DURHAM STREET
VAUXHALL

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 10200 sqm
Survey date: MONDAY *19/11/18* *Survey Type: MANUAL*

2 LB-02-A-02 MUSIC COMPANY LAMBETH
STREATHAM HIGH ROAD
STREATHAM

Town Centre
High Street
Total Gross floor area: 3054 sqm
Survey date: TUESDAY *05/11/19* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
HD-02-A-09	Unsuitable Comparison

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
MULTI-MODAL TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 12.89

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	6184	0.073	2	6184	0.024	2	6184	0.097
08:00 - 09:00	2	6184	0.129	2	6184	0.049	2	6184	0.178
09:00 - 10:00	2	6184	0.121	2	6184	0.121	2	6184	0.242
10:00 - 11:00	2	6184	0.186	2	6184	0.146	2	6184	0.332
11:00 - 12:00	2	6184	0.097	2	6184	0.121	2	6184	0.218
12:00 - 13:00	2	6184	0.113	2	6184	0.105	2	6184	0.218
13:00 - 14:00	2	6184	0.065	2	6184	0.105	2	6184	0.170
14:00 - 15:00	2	6184	0.113	2	6184	0.129	2	6184	0.242
15:00 - 16:00	2	6184	0.065	2	6184	0.081	2	6184	0.146
16:00 - 17:00	2	6184	0.081	2	6184	0.105	2	6184	0.186
17:00 - 18:00	2	6184	0.024	2	6184	0.049	2	6184	0.073
18:00 - 19:00	2	6184	0.016	2	6184	0.073	2	6184	0.089
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.083			1.108			2.191

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Parameter summary

Trip rate parameter range selected:	2667 - 9700 (units: sqm)
Survey date date range:	01/01/14 - 05/11/19
Number of weekdays (Monday-Friday):	2
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	2
Surveys manually removed from selection:	1

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
MULTI-MODAL OGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	6184	0.000	2	6184	0.000	2	6184	0.000
08:00 - 09:00	2	6184	0.008	2	6184	0.008	2	6184	0.016
09:00 - 10:00	2	6184	0.000	2	6184	0.000	2	6184	0.000
10:00 - 11:00	2	6184	0.016	2	6184	0.016	2	6184	0.032
11:00 - 12:00	2	6184	0.008	2	6184	0.008	2	6184	0.016
12:00 - 13:00	2	6184	0.000	2	6184	0.000	2	6184	0.000
13:00 - 14:00	2	6184	0.000	2	6184	0.000	2	6184	0.000
14:00 - 15:00	2	6184	0.000	2	6184	0.000	2	6184	0.000
15:00 - 16:00	2	6184	0.000	2	6184	0.000	2	6184	0.000
16:00 - 17:00	2	6184	0.000	2	6184	0.000	2	6184	0.000
17:00 - 18:00	2	6184	0.000	2	6184	0.000	2	6184	0.000
18:00 - 19:00	2	6184	0.000	2	6184	0.000	2	6184	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.032			0.032			0.064

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 12.89

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	6184	0.671	2	6184	0.040	2	6184	0.711
08:00 - 09:00	2	6184	2.563	2	6184	0.154	2	6184	2.717
09:00 - 10:00	2	6184	3.032	2	6184	0.291	2	6184	3.323
10:00 - 11:00	2	6184	0.970	2	6184	0.396	2	6184	1.366
11:00 - 12:00	2	6184	0.728	2	6184	0.542	2	6184	1.270
12:00 - 13:00	2	6184	1.544	2	6184	1.577	2	6184	3.121
13:00 - 14:00	2	6184	2.110	2	6184	2.183	2	6184	4.293
14:00 - 15:00	2	6184	1.609	2	6184	1.318	2	6184	2.927
15:00 - 16:00	2	6184	0.639	2	6184	0.881	2	6184	1.520
16:00 - 17:00	2	6184	0.299	2	6184	1.496	2	6184	1.795
17:00 - 18:00	2	6184	0.202	2	6184	2.790	2	6184	2.992
18:00 - 19:00	2	6184	0.049	2	6184	2.167	2	6184	2.216
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			14.416			13.835			28.251

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
MULTI-MODAL LGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	6184	0.040	2	6184	0.024	2	6184	0.064
08:00 - 09:00	2	6184	0.057	2	6184	0.024	2	6184	0.081
09:00 - 10:00	2	6184	0.032	2	6184	0.049	2	6184	0.081
10:00 - 11:00	2	6184	0.073	2	6184	0.081	2	6184	0.154
11:00 - 12:00	2	6184	0.057	2	6184	0.057	2	6184	0.114
12:00 - 13:00	2	6184	0.065	2	6184	0.040	2	6184	0.105
13:00 - 14:00	2	6184	0.032	2	6184	0.065	2	6184	0.097
14:00 - 15:00	2	6184	0.089	2	6184	0.097	2	6184	0.186
15:00 - 16:00	2	6184	0.024	2	6184	0.049	2	6184	0.073
16:00 - 17:00	2	6184	0.057	2	6184	0.081	2	6184	0.138
17:00 - 18:00	2	6184	0.000	2	6184	0.008	2	6184	0.008
18:00 - 19:00	2	6184	0.000	2	6184	0.000	2	6184	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.526			0.575			1.101

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

Appendix 4
Air Quality Technical Note

ARDENT
CONSULTING ENGINEERS

ST. GEORGE WEST LONDON LTD.

CAMDEN GOODS YARD: PFS SITE – JUNIPER BUILDING REVISIONS

AIR QUALITY TECHNICAL NOTE

REPORT REF – 2105800-04D

AUGUST 2022

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-	Draft	NH	ET	-	12/07/2022
-	Final	NH	ET	NH	20/07/2022
A	Final	NH	ET	NH	21/07/2022
B	Final	NH/ET	ET	NH	28/07/2022
C	Final	NH/ET	ET	NH	17/08/2022
D	Final	NH/ET	ET	NH	18/08/2022

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1.0 INTRODUCTION

1.1 Ardent Consulting Engineers Ltd, (ACE) have been commissioned by St. George West London Ltd. (the 'Applicant') to produce this Air Quality Technical Note (AQTN) to support this S73 application for amendments to the former Petrol Filling Station (PFS) parcel (hereafter referred to as 'the PFS parcel') which, along with the Main Site parcel (MS parcel), forms part of the Camden Goods Yard development site (hereafter referred to as 'the application site').

Previous Applications

1.2 In June 2017 a full planning application was submitted for the redevelopment of the application site. This application was accompanied an Environmental Statement (the '2017 ES') which reported on the outcomes of an Environmental Impact Assessment (EIA) of the proposed development of the application site. Planning approval was granted of in June 2018 under planning permission reference 2017/3847/P (the '2018 consented scheme').

1.3 In January 2020 a S73 application was submitted and approved in May 2020 (application reference 2020/0034/P) (the 'May 2020 consented scheme') which secured amendments to the PFS parcel for the insertion of a new development phase (Phase 1a) to allow for a single storey temporary food store to be constructed, enabling the development of the MS parcel (the former Morrisons store site) to come forward sooner. This temporary store opened in February 2021. An updated EIA was undertaken and reported in an Environmental Implications Letter (EIL) (the 'January 2020 EIL'). A second S73 application was submitted in July 2020 and approved in December 2020 (application reference 2020/3116/P) (the 'December 2020 consented scheme') for minor amendments to Blocks A, B, C and F on the MS parcel (no amendments were sought to the PFS parcel). An updated EIA was undertaken and reported in an EIL (the 'July 2020 EIL'). The most recent amendment was the submission of a S96A non-material amendment application (planning ref: 2022/0673/P) approved in February 2022 (the 'February 2022 consented scheme').

1.4 The Applicant is now submitting a third minor material amendment (MMA) S73 application (the 'August 2022 S73 application') for proposed amendments to the

consented proposals at the 'PFS parcel' of the application site (no amendments are sought to the consented development at the MS parcel). The February 2022 consented scheme as amended by the August 2022 proposed amendments are referred to as the 'August 2022 amended proposed development'.

Previous Air Quality Assessment Work

1.5 An Air Quality Assessment (AQA) (ACE, 2017) was undertaken by ACE in September 2017 as part of the 2017 ES to consider the potential air quality impacts of the development of the application site. The 2017 AQA determined that, following the implementation of appropriate mitigation[1], the overall residual effects of the proposed development[2] would be 'negligible' and not significant.

1.6 An AQA Addendum (ACE, 2020) was undertaken by ACE in July 2020, ('2020 AQA Addendum'), as part of the July 2020 EIL to assess minor amendments to Blocks A, B, C and F on the MS parcel. The 2020 AQA Addendum provided an updated assessment of air quality impacts associated with the July 2020 amended proposed development (i.e. the 'December 2020 consented scheme'), and determined that, following the implementation of appropriate mitigation[1], the overall residual effects[2] would be 'not significant', and that there would be no material difference to the overall effects as determined by the 2017 AQA (ACE, 2017).

August 2022 Amended Proposed Development

1.7 A number of amendments to the consented development on the PFS parcel are proposed. An outline of the proposed amendments comprising the August 2022 amended proposed development is provided in Section 2.0.

[1] Mitigation measures were recommended in response to emissions of dust and particulate matter (PM_{10}) during the demolition and construction phase.

[2] Based on development designs that were current at the time of undertaking the assessment.

Scope

1.8 The purpose of this AQTN is to consider whether the proposed amendments to the consented scheme and the amended proposed development as a whole would materially change the outcomes previously reported in the 2020 AQA Addendum (ACE, 2020).

1.9 The scope of this AQTN includes consideration of proposed changes to the consented scheme on the PFS parcel, changes to cumulative developments (including the removal from consideration of three lapsed cumulative schemes), changes to applicable legislation, policy, guidance and tools and changes to air quality baseline conditions since the 2020 AQA Addendum was produced.

2.0 SUMMARY OF PROPOSED CHANGES TO THE CONSENTED SCHEME

2.1 The August 2022 proposed development is as follows:

"*Variation of Condition 3 (approved drawings) of planning permission 2020/3116/P dated 07/12/2020 which varied Condition 3 (approved drawings) of planning permission 2020/0034/P dated 05/05/2020 which varied condition 4 (approved drawings) of planning permission 2017/3847/P dated 15/06/2018 (as amended by 2022/0673/P dated 23/02/2022, 2021/3337/P dated 24/08/2021, 2021/2864/P dated 17/09/2021, 2020/2786/P dated 09/07/2020, 2020/2325/P dated 18/06/2020, 2019/6301/P dated 24/12/2019, 2019/0153/P dated 06/02/2019 and 2019/2962/P dated 04/07/2019) for redevelopment of the petrol filling station site and main supermarket sites; namely for: removal of petrol filling station; reconfiguration of the ground floor to incorporate additional office and retail floorspace, mezzanine level and electric vehicle charging station; internal reconfiguration of 1st and 2nd floor plans; extension of building west by approximately 6 metres resulting in an additional 1,900 sqm (GEA). This application is accompanied by an addendum to the original Environmental Statement.*"

2.2 A summary of the proposed amendments that are relevant from an air quality perspective are as follows:

- Removal of the PFS;
- Reconfiguration of ground floor layout to accommodate:
    - Additional improved office and retail floorspace and back of house (BOH) functions;
    - Enlarging the office lobby;
    - Introducing an office lobby-café;
    - Including a dedicated office cycle entrance;
    - Introducing an office mezzanine level; and

- Replacing the PFS with an electric vehicle (EV) charging station (comprising four public bays);

- Extending the building 6 m, resulting in the creation of additional office floorspace across all levels (2,207 m^2 Gross Internal Area (GIA) and an additional ground floor retail unit (50 m^2 GIA);

- Introduction of a mezzanine level to the 1st floor;

- Building footprint to the east adjusted (shifted 390 mm westwards to improve pavement widths by 0.4 m);

- Internal reconfiguration of the Corner Building by converting the retail (F&B) floorspace on Level 1 (201 m^2 GIA) and Level 2 (197 m^2 GIA) to office floorspace retaining retail (F&B) at Levels 3 and 4 and the winter garden;

- Reconfiguration of Morrisons floorplan to widen the frontage by one bay and reduce depth of unit to facilitate improved trading and BOH operations;

- Rationalisation of plant space at ground floor enabling the omission of plant from 2nd floor; and

- Reconfiguration of plant at roof level.

2.3 The amended site layout of the PFS parcel is shown in Appendix B.

3.0 SUMMARY OF CHANGES TO LEGISLATION, POLICY, GUIDANCE AND TOOLS

3.1 A summary of changes to relevant legislation, policy, guidance and tools used to support AQAs since the 2020 AQA Addendum (ACE, 2020) is outlined below.

National Air Quality Legislation and Strategy

The Environment Act 2021

3.2 The Environment Act 2021 (UK Government, 2021) establishes a legally binding duty on government to set a long-term target for at least one air quality matter, in addition to a separate requirement to set a target regarding annual mean $PM_{2.5}$ concentrations, by October 2022. An online consultation was undertaken regarding the proposed new targets[3] (Defra, 2022) between March and June 2022, closing on 27th June 2022.

3.3 As the proposed new targets are still subject to consultation and approval, it is not considered necessary to consider the potential impacts of the August 2022 proposed development in the context of the proposed targets. As such, this proposed change to legislation will not materially change the outcomes of the 2020 AQA Addendum (ACE, 2020).

Planning Policy

National Planning Policy

3.4 The National Planning Policy Framework (NPPF) (Ministry of Housing, Communities and Local Government, 2021) sets out the Government's planning policies for England and how they expect these to be implemented. Consideration of air quality within planning is considered an important element of this framework which recommends that transport and the potential impact on the environment should

[3] Proposed air quality targets are 1) Annual Mean $PM_{2.5}$ Concentration Target of 10 µg/m^3 to be met across England by 2040; and 2) Population Exposure $PM_{2.5}$ Reduction Target of a 35% reduction in population exposure by 2040 (as compared to a base year of 2018).

be considered at an early stage in order to allow for mitigation or even avoidance of impacts through location and layout of developments.

3.5 It is recommended that both the impacts of a potential development on the environment and the risk to new development from existing pollution be taken into account when planning policy is drafted. Furthermore these should contribute to compliance with relevant limit values or objectives and should be consistent with any local Air Quality Action Plan (AQAP).

3.6 The NPPF also recommends that *"existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed."*

3.7 It is not considered that amendments to the updated NPPF have the potential to materially change the outcome of the 2020 AQA Addendum (ACE, 2020).

Regional Planning Policy

3.8 The current London Plan (Mayor of London, 2021) was adopted in March 2021. This includes a number of references to air quality, which are all incorporated into Policy SI1: 'Improving Air Quality'.

3.9 No changes to this policy have been made since the 'Intend to Publish' London Plan (Mayor of London, 2019), which was applicable at the time of the development of the 2020 AQA Addendum (ACE, 2020). As such, it is not considered that amendments to the updated NPPF have the potential to materially change the outcome of the 2020 AQA Addendum (ACE, 2020).

Assessment Guidance

Local Air Quality Management Technical Guidance (LAQM.TG(16))

3.10 The LAQM.TG(16) guidance (Defra, 2021) was published for use by local authorities in review and assessment work, but also includes a number of technical guidelines on carrying out modelling assessment and management of monitoring data which set out best practice and are, therefore, relevant to all air quality assessments.

3.11 It is not considered that amendments to the updated NPPF have the potential to materially change the outcome of the 2020 AQA Addendum (ACE, 2020).

Air Quality Neutral Consultation Draft Guidance

3.12 In November 2021 a consultation draft version of the 'London Plan Guidance; Air Quality Neutral' (GLA, 2021a) was published by the Greater London Authority (GLA). This draft consultation guidance sets out the methodology for considering the 'air quality neutrality' of new developments, including details of updated 'air quality neutral' benchmarks (see Appendix C), as well as recommendations regarding mitigation and offsetting.

3.13 It is acknowledged that, as this guidance is at 'consultation draft' stage only, it is not technically applicable at the time of preparing this AQTN. However, much of the information within the 'current' guidance (i.e. The 'Air Quality Neutral Planning Support Update: GLA 80371' (Air Quality Consultants, 2014)) may be quite out of date. As such, it is considered appropriate and robust to reassess the 'air quality neutrality' of the August 2022 amended PFS parcel in the context of both sets of guidance (see Section 4.0). As no changes to the MS parcel are proposed, no reassessment of this element of the application site is considered to be necessary.

Air Quality Positive Consultation Draft Guidance

3.14 In November 2021 a consultation draft version of the 'London Plan Guidance; Air Quality Positive' (GLA, 2021b) was published by the GLA. This draft consultation guidance sets out the approach to considering how new developments contribute

to an 'air quality positive' scheme, as well as the required structure of an Air Quality Positive Statement.

3.15 Consideration of 'air quality positive' should typically be undertaken throughout the design process, including at an early stage in the design of a development, in order to identify opportunities to maximise air quality benefits and thus deliver an 'air quality positive' scheme. Taking into consideration that much of the August 2022 proposed development is already consented, and that the remainder is at a late stage in the design process and subject to proposed minor amendments only, it is not considered appropriate or necessary to consider 'air quality positive' at this stage of the development.

Assessment Tools

3.16 Since the 2020 AQA Addendum (ACE, 2020) was undertaken, three of the tools that were used to undertake this assessment have been updated; the Department for Environment, Food and Rural Affairs' (Defra's) Emissions Factor Toolkit (EFT), Defra's nitrogen dioxide (NO_2) from nitrogen oxides (NO_x) calculator and Defra's background maps. The most up-to-date version of Defra's EFT is v11.0 (Defra, 2021), the most up-to-date version of Defra's NO from NO calculator is v8.1 (Defra, 2019) and the most up-to-date version of Defra's background maps are the 2018-based iteration (Defra, 2020).

3.17 Defra's EFT, NO_2 from NO_x calculator and background maps are all used to inform the atmospheric dispersion modelling undertaken as part of the 2020 AQA Addendum. The version of Defra's EFT used by the 2020 AQA Addendum is v9.0 (Defra, 2019), the version of Defra's NO_2 from NO_x calculator is v7.1 (Defra, 2019) and the version of Defra's background maps used are the 2017-based iteration (Defra, 2019). The potential for changes to these tools to materially change the outcome of the 2020 AQA Addendum is discussed in Section 5.0.

4.0 SUMMARY OF CHANGES TO BASELINE CONDITIONS

4.1 A summary of changes to relevant air quality baseline conditions since the 2020 AQA Addendum (ACE, 2020) is outlined below.

Clean Air Zones

4.2 The application site is located within the Ultra Low Emission Zone (ULEZ) following the recent expansion which took effect on the 25th October 2021; at the time of undertaking the 2020 AQA Addendum the application site was not located within the ULEZ. The ULEZ charges cars, motorcycles, vans and other specialist vehicles (up to and including 3.5 tonnes) and minibuses (up to and including 5 tonnes) that do not meet the required ULEZ emissions standards when driving within the zone. The ULEZ standards are Euro III (NO_x), Euro IV (NO_x) and Euro VI (NO_x and PM) standards.

4.3 As the expansion of the ULEZ is likely to result in better air quality within the application site and in the surrounding area, it is considered that the omission of consideration of this within the 2020 AQA Addendum would result in a more conservative assessment. As such, the expansion of the ULEZ is not considered to have the potential to materially change the outcome of the 2020 AQA Addendum (i.e. the conclusion that overall effects will be 'not significant').

Monitoring

4.4 Since the 2020 AQA Addendum (ACE, 2020) was undertaken, the London Borough of Camden (LBC) has carried out further monitoring at the automatic and diffusion tube monitoring sites identified within the 2020 AQA Addendum in 2019 and 2020. Measured NO_2 concentrations from 2014 to 2020[4] are shown in Table 4-1 and

[4] As a result of the Covid-19 pandemic and associated behavioural changes and measures implemented by the governing authorities (e.g. lockdowns, travel restrictions etc.) measured concentrations during 2020 are not considered to be representative of 'normal' conditions. As such, measured 2020 concentrations are presented for information only, and have not been discussed or given weight in determining the conclusions of this AQTN.

Table 4-2. Measured particulate matter (PM_{10} and $PM_{2.5}$) concentrations from 2014 to 2020[5] are shown in Table 4-3.

4.5 Exceedances of the annual mean NO_2 objective were measured at automatic monitoring sites CD1 and CD9 and at diffusion tube monitoring sites CA15, CA16, CA17 and CA23 in 2019. No exceedances of the 1-hour mean NO_2 objective were measured by the automatic monitoring sites in 2019. Furthermore, annual mean concentrations measures by diffusion tube monitoring sies in 2019 are <60 µg/m^3, indicating that no exceedances of the 1-hour mean NO_2 objective were likely.

4.6 No exceedances of the PM_{10} or $PM_{2.5}$ objectives were measured in 2019.

4.7 Measured annual mean NO_2 concentrations at diffusion tube monitoring sites CA16 and CA23 were used to verify the atmospheric dispersion modelling undertaken as part of the 2020 AQA Addendum. The potential for updated monitoring at these sites to materially change the outcome of the 2020 AQA Addendum is discussed in Section 5.0.

[5] As a result of the Covid-19 pandemic and associated behavioural changes and measures implemented by the governing authorities (e.g. lockdowns, travel restrictions etc.) measured concentrations during 2020 are not considered to be representative of 'normal' conditions. As such, measured 2020 concentrations are presented for information only, and have not been discussed or given weight in determining the conclusions of this AQTN.

Table 4-1: Measured Annual Mean NO_2 Concentrations ($\mu g/m^3$)

Site ID	Site Name	Site Type	2014	2015	2016	2017	2018	2019	2020
Automatic Sites									
CD1	Swiss Cottage	Kerbside	**66**	**61**	**66**	53	54	43	33
CD9	Euston Road	Roadside	**98**	**90**	**88**	**83**	**82**	**70**	43
Diffusion Tube Sites									
CA4	Euston Road	Roadside	**90**	**87**	**83**	**93**	**69**	**69**	52
CA15	Swiss Cottage	Kerbside	**74**	**69**	**74**	-	**62**	50	-
CA16	Kentish Town Road	Roadside	58	**64**	59	**75**	55	45	33
CA17	47 Fitzjohn's Road	Roadside	**60**	56	56	**66**	48	43	34
CA20	Brill Place	Roadside	52	49	48	53	41	43	43
CA23	Camden Road	Roadside	**72**	**63**	**62**	**69**	56	52	43
Objective			40						

Exceedances of the annual mean objective are shown in **bold**. Measured concentrations >60 $\mu g/m^3$ are shown in **bold underline**.
2019 and 2020 data have been taken from LBC's 2020 Air Quality Annual Status Report (ASR) (LBC, 2021).

Table 4-2: Measured Exceedances of the Hourly Mean NO_2 Objective

Site ID	Site Name	Site Type	Number of Hours >200 $\mu g/m^3$						
			2014	2015	2016	2017	2018	2019	2020
CD1	Swiss Cottage	Kerbside	14	11	37	1	2	1	0
CD9	Euston Road	Roadside	221	54	39	25	18	7	0
Objective			18						

Exceedances of the annual mean objective are shown in **bold**.
2019 and 2020 data have been taken from LBC's 2020 ASR (LBC, 2021).

Table 4-3: Measured PM_{10} and $PM_{2.5}$ Concentrations ($\mu g/m^3$) and Exceedances

Site ID	Site Name	Site Type	2014	2015	2016	2017	2018	2019	2020
Annual Mean PM_{10} ($\mu g/m^3$)									
CD1	Swiss Cottage	Kerbside	22	20	21	20	21	19	16
CD9	Euston Road	Roadside	29	18	24	20	21	22	18
Objective			40						
PM_{10} Number of Days >50 $\mu g/m^3$									
CD1	Swiss Cottage	Kerbside	12	8	7	8	4	8	3
CD9	Euston Road	Roadside	5	5	10	3	2	8	2
Objective			35						
Annual Mean $PM_{2.5}$ ($\mu g/m^3$)									
CD1	Swiss Cottage	Kerbside	-	12	15	16	11	11	10
CD9	Euston Road	Roadside	-	17	17	14	15	14	11
Objective			20						

2019 and 2020 data have been taken from LBC's 2020 ASR (LBC, 2021).

5.0 AIR QUALITY IMPACTS

5.1 Proposed changes to the design of the August 2022 proposed development, changes in legislation, policy, guidance and assessment tools, changes in cumulative schemes and changes in baseline conditions have the potential to alter the conclusions of the 2020 AQA Addendum (ACE, 2020). The potential for material changes is discussed below.

Construction Impacts

Construction Dust

5.2 The 2020 AQA Addendum (ACE, 2020)) concludes that appropriate mitigation measures corresponding to a 'medium risk' site are required during the demolition and construction stage of the development.

5.3 It is judged that the proposed changes to the design of the development outlined by the August 2022 proposed development are not sufficient to result in material changes to the outcome of the 2020 AQA Addendum'[6]; i.e. following implementation of the level of mitigation recommended within the 2020 AQA Addendum, residual effects would be 'not significant'.

5.4 There are no changes to legislation, policy, guidance or assessment tools that would have the potential to materially change the outcome of the 2020 AQA Addendum, as there are no changes to such that would affect the assessment methodology.

5.5 There are no changes to cumulative schemes that would have the potential to materially change the outcome of the 2020 AQA Addendum, as the recommended mitigation will remain the same regardless.

5.6 The only changes to baseline air quality conditions that would have the potential to affect the outcome of the 2020 AQA Addendum would be changes in baseline

[6] This includes the assumption that volumes and routing of construction traffic would not materially change, as compared to the February 2022 consented scheme (as confirmed by the project's transport team; ACE).

PM_{10} as a result of the demolition and construction phase occurring at a later date than assumed by the 2020 AQA Addendum. However, as it is generally accepted that concentrations of PM_{10} will reduce throughout the UK in the coming decade, the approach adopted by the 2020 AQA Addendum is considered to be conservative and, therefore, still appropriate. As such, it is judged that changes to baseline conditions would not have the potential to materially change the outcome of the 2020 AQA Addendum.

5.7 The above conclusion is applicable to the whole application site, as amended in accordance with the August 2022 proposed development.

Demolition and Construction Traffic Impacts

5.8 The 2020 AQA Addendum (ACE, 2020) assessed the potential for impacts as a result of emissions of NO_2, PM_{10} and $PM_{2.5}$ associated with development-generated demolition and construction traffic. The assessment concluded that the change in traffic associated with the demolition and construction stage would result in an overall reduction in trips when compared to the baseline traffic (though with a slight increase in the volume of Heavy Duty Vehicles (HDVs)) and that, therefore, the overall emissions were considered to be similar to baseline levels.

5.9 Volumes of development-generated demolition and construction traffic for the August 2022 proposed development are not anticipated to materially change as compared to the those reported in the 2020 AQA Addendum[7]. As such, it is judged that changes to development design as a result of the August 2022 proposed development would not materially affect the outcomes of the 2020 AQA Addendum.

5.10 There are no changes to legislation, policy, guidance or assessment tools that would have the potential to materially change the outcome of the 2020 AQA Addendum, as there are no changes to such that would affect the assessment methodology.

[7] Based on information provided by the project's transport team; ACE.

5.11 There are no changes to cumulative schemes that would have the potential to materially change the outcomes of the 2020 AQA Addendum, as the presence of cumulative schemes does not form part of the assessment criteria.

5.12 There are no changes to air quality baseline conditions that would have the potential to materially change the outcomes of the 2020 AQA Addendum, as the baseline air quality conditions do not form part of the assessment criteria.

5.13 The above conclusion is applicable to the both the PFS parcel and the whole application site, as amended in accordance with the August 2022 proposed development.

Completed Development Effects

Development-generated Road Traffic Impacts

5.14 The 2020 AQA Addendum (ACE, 2020) assessed the potential for impacts on existing residences in the local area as a result of changes in concentrations of NO_2, PM_{10} and $PM_{2.5}$ associated with development-generated completed development traffic. Predicted impacts were concluded to be 'negligible' at each receptor, and the overall effect was judged to be 'not significant'.

5.15 The proposed changes to the development design as a result of the August 2022 proposed development would result in a substantial reduction in traffic generated by both the PFS parcel and the whole application site during the completed development stage, as compared with those reported in the 2020 AQA Addendum (i.e. a reduction of 1,492 Annual Average Daily Traffic (AADT)) and also as compared to the previous baseline use of the application site (i.e. a reduction of 1,406 AADT)[7]. Furthermore, the proposed amendments would result in the provision of four publicly available EV charging bays as well as an increase in the number of cycle parking spaces (an increase of 114 long-stage spaces and 40 short-stage spaces). These changes have the potential to contribute to a wider shift in transport patterns by promoting forms of transport with lower / zero associated emissions, thus contributing to further reducing emissions. Taking into consideration the above, it is judged that the August 2022 proposed development would not materially affect the outcome of the 2020 AQA Addendum; i.e. the overall effect of development-generated completed development traffic would be

'not significant'. This conclusion is applicable to the both the PFS parcel and the whole application site, as amended in accordance with the August 2022 proposed development.

5.16 Since the 2020 AQA Addendum was undertaken, Defra has revised the EFT (Defra, 2021), NO_2 from NO_x calculator (Defra, 2019) and background maps (Defra, 2020) tools, which have the potential to changes the modelled concentrations of pollutants. Taking into consideration the relatively low modelled process contributions (PCs) of pollutants at identified existing sensitive receptors (maximum PCs of 0.43 µg/m^3 NO_2, 0.03 µg/m^3 PM_{10} and 0.02 µg/m^3 $PM_{2.2}$), it is considered to be unlikely that any changes to predicted concentrations as a result of changes to these tools would be insufficient to result in a material change to the outcomes of the 2020 AQA Addendum. Furthermore, when taking into consideration that the modelled outcomes presented within the 2020 AQA Addendum are based on assumptions that are now worst-case in terms of modelled traffic and baseline conditions (see Paragraphs 5.15 and 5.18), it is considered that any potential worsening of predicted impacts as a result of changes to the tools, would be likely to be offset by the overall reduction in development-generated traffic and measured pollutants concentrations at local monitoring sites.

5.17 There are no changes to cumulative schemes that would have the potential to materially change the outcomes of the 2020 AQA Addendum, as any changes to cumulative schemes are considered to be unlikely to cause the traffic data on which the 2020 AQA Addendum is based to become materially more worst-case[7].

5.18 The modelling undertaken as part of the 2020 AQA Addendum was verified using 2018 monitoring data. Since the assessment was undertaken, further monitoring has been undertaken by LBC at the sites used to verify the model. However, as measured concentrations at both verification sites (CA16 and CA23) are lower in both 2019 and 2020 than in 2018 (see Table 4-1), any update to the 2018 verification based solely on changes to the verification site monitoring results[8] (i.e.

[8] Confirmed by the project's transport consultant (ACE).

updated to 2019 or 2020[9]) would result in a lower adjustment factor and, therefore, lower predicted concentrations. As such, the approach adopted by the 2020 AQA Addendum is considered to be conservative and, therefore, still appropriate. This being the case, it is judged that changes to baseline conditions would not have the potential to materially change the outcome of the 2020 AQA Addendum. This conclusion is applicable to the both the PFS parcel and the whole application site, as amended in accordance with the August 2022 proposed development.

Site Suitability

5.19 The 2020 AQA Addendum (ACE, 2020) predicted annual mean concentrations of NO_2, PM_{10} and $PM_{2.5}$ at sensitive locations within the application site (including the PFS parcel) and compared the concentrations to the relevant national air quality objectives (see Appendix C). Predicted concentrations were demonstrated to be below the relevant objectives at all identified sensitive locations and, therefore, it was judged that air quality within the application site was 'good' and that the application site was suitable for its intended end-use.

5.20 The August 2022 proposed development would result in material changes to the location of areas of relevant exposure to air pollutants within the PFS parcel. All relevant exposure[10] (i.e. the proposed retail and winter garden space) are sensitive to the 1-hour mean NO_2 objective only (see Appendix C). Within the 2020 AQA Addendum, receptors G1, G2, G3 and G4 were modelled at a height of 1.5 m (representing ground floor level); these receptors are considered to still be adequately representative of proposed sensitive locations within the August 2022 proposed development (in particular, receptors G1 and G2 are considered to be

[9] As a result of the Covid-19 pandemic and associated behavioural changes and measures implemented by the governing authorities (e.g. lockdowns, travel restrictions etc.) measured concentrations during 2020 are not considered to be representative of 'normal' conditions. As such, it is advised that atmospheric dispersion modelling should not be verified using 2020 monitoring data.

[10] The proposed office space is not considered to be relevant exposure in terms of the national air quality objectives, as the national air quality objectives apply to members of the public only.

representative of worst-case locations). Predicted concentrations of NO_2 at receptors G1, G2, G3 and G4 were found by the 2020 AQA Addendum to be well below the proxy value for the 1-hour mean NO_2 objective[11] (i.e. 60 µg/m^3). As such, it is judged that the PFS parcel, taking into consideration the proposed amendments as part of the August 2022 proposed development, is suitable for its proposed end-use; i.e. the application site is suitable for its proposed end-use. It is not considered to be necessary or appropriate to re-evaluate predicted concentrations of pollutants within the MS site, as this is already consented and no amendments to this site are being sought.

5.21 Since the 2020 AQA Addendum was undertaken, Defra has revised the EFT (Defra, 2021), NO_2 from NO_x calculator (Defra, 2019) and background maps (Defra, 2020) tools, which have the potential to changes the modelled concentrations of pollutants. Taking into consideration that the modelled concentrations of NO_2 within the PFS parcel (as presented within the 2020 AQA Addendum) are substantially below the proxy for the applicable national objective[11] (a maximum concentration of 39.6 µg/m^3 is predicted, against the proxy national objective of 60 µg/m^3), it is considered that any changes to predicted concentrations that could occur as a result of changes to these tools would be insufficient to result in a material change to the outcomes of the 2020 AQA Addendum. Furthermore, when taking into consideration that the modelled outcomes presented within the 2020 AQA Addendum are based on assumptions that are now worst-case in terms of modelled traffic and baseline conditions (see Paragraphs 5.15 and 5.18), it is considered that any potential worsening of predicted impacts as a result of changes to the tools, would be likely to be offset by the overall reduction in development-generated traffic and measured pollutants concentrations at local monitoring sites. It is not considered to be necessary or appropriate to re-evaluate predicted concentrations of pollutants within the MS site, as this is already consented and no amendments to this site are being sought.

5.22 There are no changes to cumulative schemes that would have the potential to materially change the outcomes of the 2020 AQA Addendum, as changes to

[11] Only the 1-hour mean NO_2 national objective is applicable within the Site.

cumulative schemes are considered to be unlikely to cause the traffic data on which the 2020 AQA Addendum is based to become materially more worst-case[7].

5.23 The modelling undertaken as part of the 2020 AQA Addendum was verified using 2018 monitoring data. Since the assessment was undertaken, further monitoring has been undertaken by LBC at the sites used to verify the model, it is judged that changes to baseline conditions would not have the potential to materially change the outcome of the 2020 AQA Addendum (as discussed in Paragraph 5.18). This conclusion is applicable to the both the PFS parcel and the whole application site, as amended in accordance with the August 2022 proposed development.

Air Quality Neutral; Transport Emissions

5.24 The 2020 AQA Addendum (ACE, 2020) found calculated development transport NO_x and PM_{10} emissions to be below the calculated Transport Emission Benchmarks (TEBs) for the application site and, therefore, it was judged that the development was 'air quality neutral' in terms of transport emissions.

5.25 The 'Sustainable Design and Construction' SPG (GLA, 2014b) was developed in 2014 as part of the Implementation Framework for the London Plan 2016 (Mayor of London, 2016). The SPG has since been revoked, however, the current London Plan (Mayor of London, 2021) still includes the requirement that development proposal must be 'at least Air Quality Neutral'. The 'current' 'Air Quality Neutral Planning Support Update: GLA 80371' (Air Quality Consultants, 2014) sets out details of the 'air quality neutral' benchmarks (see Appendix D).

5.26 Further draft guidance has recently (November 2021) been published (GLA, 2021a) for consultation. This updated draft guidance includes revised 'air quality neutral' benchmarks and, therefore, has the potential to change the outcome of the assessment previously undertaken as part of the 2020 AQA Addendum.

5.27 Additionally, changes to development design as part of the August 2022 proposed development would affect the 'air quality neutral' calculations in the following ways:

1. Changes to the GIA of each land use type would affect the applicable TEBs; and

2. Changes to the total volume of operational development-generated traffic.

5.28 There are no changes to cumulative schemes that would have the potential to materially change the outcomes of the 2020 AQA Addendum, as the presence of cumulative schemes does not form part of the assessment criteria.

5.29 There are no changes to air quality baseline conditions that would have the potential to materially change the outcomes of the 2020 AQA Addendum, as the baseline air quality conditions do not form part of the assessment criteria.

5.30 Two separate re-assessments of the 'air quality neutrality' of both the PFS parcel and the whole application site are presented below, one based on the 'current' guidance and one based on the 'consultation draft' guidance.

'Current' Air Quality Neutral Guidance Assessment; PFS Parcel

5.31 An updated 'air quality neutral' assessment has been undertaken based on the methodology and supporting information set out within the 'current' guidance (i.e. The 'Air Quality Neutral Planning Support Update: GLA 80371' (Air Quality Consultants, 2014)) (see Appendix D).

5.32 The air quality neutral calculation and comparison of transport emissions and TEBs for the PFS parcel (as amended by the August 2022 proposed development) are described in Table 5-1 to Table 5-4. Land use categories specified have been defined using the categories provided by the 'current' 'Sustainable Design and Construction' SPG (GLA, 2014b) (i.e. pre-September 2020 land use class definition). Trips associated with the PFS parcel do not include trips by electric vehicles, as emissions associated with such vehicles will be minimal (restricted to PM_{10} and $PM_{2.5}$ emissions associated with road, tyre and break wear only).

Table 5-1: TEB Calculation

Land Use Class [a] (Guidance Category)	GIA (m^2)	Transport Benchmark Rates (kg / m^2 / annum)		Proposed Development TEB (kg / annum)	
		NO_x	PM_{10}	NO_x	PM_{10}
Retail (A1)[a]	1,013	0.219	0.039	222	40
Office (B1)[b]	12,329	0.011	0.002	141	25
Total	-	-	-	362	65

[a] Land use classes A1 - A3 have been classified as 'A1', following the approach taken by the 2020 AQA Addendum. All other land uses have been assumed to be associated with the proposed 'B1' land use as this results in a lower benchmark, thus providing a more conservative assessment.

Table 5-2: Proposed Development Trip Generation

Land Use Class (Guidance Category)	Trips / Day	Trips / Annum	Average Distance Travelled / Trip (km)	Distance Travelled / Annum (km)
Retail (A1)	24	8,760	5.9	51,684
Office (B1)	90	32,850	7.7	252,945
Total	114	41,610	-	304,629

[a] Land use classes A1 - A3 have been classified as 'A1', following the approach taken by the 2020 AQA Addendum.

Table 5-3: Proposed Development Transport Emission Calculation

Land Use Class (Guidance Category)	Emissions Factors (g / vehicle-km)		Annual transport Emissions (kg / annum)	
	NO_x	PM_{10}	NO_x	PM_{10}
Retail (A1)	0.3700	0.0665	19	3
Office (B1)	0.3700	0.0665	94	17
Total	-	-	113	20

Table 5-4: Proposed Development Emissions and TEB Comparison (kg/annum)

Land Use Class (Guidance Category)	Benchmarked Emissions		Proposed Development Emissions		Comparison to Benchmarked Emissions	
	NO_x	PM_{10}	NO_x	PM_{10}	NO_x	PM_{10}
Retail (A1)	222	40	19	3	-203	-36
Office (B1)	141	25	94	17	-47	-8
Total	362	65	113	20	-250	-45

5.33 The calculated transport NO_x and PM_{10} emissions are below the calculated TEBs for the proposed retail element and above the calculated TEBs for the proposed office element. The overall combined transport NO_x and PM_{10} emissions for PFS parcel (as amended by the August 2022 proposed development) are below the combined calculated TEBs, therefore, the PFS parcel (as amended by the August 2022 proposed development) is judged to be better than 'air quality neutral' in terms of transport emissions when the 'current' air quality neutral guidance is applied; i.e. there is no material change to the outcome of the 2020 AQA Addendum.

'Consultation Draft' Air Quality Neutral Guidance Assessment; PFS Parcel

5.34 In November 2021 a consultation draft version of the 'London Plan Guidance; Air Quality Neutral' (GLA, 2021a) was published for consultation by the GLA (see Paragraphs 3.12 and 3.13 and Appendix D). The calculated 'air quality neutrality' of the PFS parcel (as amended by the August 2022 proposed development), in accordance with the consultation draft guidance, is set out below.

5.35 The air quality neutral calculation and comparison of transport emissions and TEBs for the PFS parcel (as amended by the August 2022 proposed development) are described in Table 5-5 to Table 5-7. Land use categories specified have been defined using the categories provided by the consultation draft 'London Plan Guidance; Air Quality Neutral' (GLA, 2021a).

5.36 The TEB benchmarks only include car or light van trips generated by development occupiers (e.g. residents, customers or employees) and does not include trips generated by deliveries and servicing, taxis of heavy vehicle movements from non-occupiers, however, the PFS parcel (as amended by the August 2022 proposed development) trips rates do include deliveries; this assumption is worst-case. Trips associated with the PFS parcel do not include trips by electric vehicles, as

emissions associated with such vehicles will be minimal (restricted to PM_{10} and $PM_{2.5}$ emissions associated with road, tyre and break wear only).

Table 5-5: Proposed Development TEBs

Land Use [a] (Guidance Category)	GIA (m^2)	Standard Benchmark Trip Rate (trips / m^2 /annum)	TEB (trips / annum)
Restaurant / Café [a]	1,013	137	138,781
Office / Light Industrial [b]	12,329	1	12,329
Total	-	-	151,110

[a] Two categories defined by the guidance ('restaurant / café' and 'Retail (Convenience)') are considered to be appliable to the proposed A1 – A3 land use; of these two options, the definition of 'restaurant / café' results in a lower benchmark and more conservative assessment; as such, this definition has been applied. All other land use classes have been assumed to be associated with the proposed 'office / light industrial' land use as this results in a lower benchmark, thus providing a more conservative assessment.

Table 5-6: Proposed Development Trip Rates

Combined Total	Trip Rate (trips / day)	Trip Rate (trips / annum)
Proposed Development	114	41,639

Table 5-7: Comparison of Proposed Development Trips Rates and BEBs

Land Use [a]	TEB (trips / annum)	Proposed Development Trip Rates (trips / annum)	Comparison (trips / annum)
Total	151,110	41,639	-109,472

5.37 The calculated overall combined trips rate associated with the PFS parcel (as amended by the August 2022 proposed development) is below the calculated combined TEB. Therefore, the PFS parcel (as amended by the August 2022 proposed development) can be considered to be better than 'air quality neutral' in terms of transport emissions; i.e. there is no material change to the outcome of the 2020 AQA Addendum.

'Current' Air Quality Neutral Guidance Assessment; Application Site

5.38 An updated 'air quality neutral' assessment has been undertaken based on the methodology and supporting information set out within the 'current' guidance (i.e. The 'Air Quality Neutral Planning Support Update: GLA 80371' (Air Quality Consultants, 2014)) (see Appendix D).

5.39 The air quality neutral calculation and comparison of transport emissions and TEBs for the application site (as amended by the August 2022 proposed development) are described in Table 5-8 to Table 5-11. Land use categories specified have been defined using the categories provided by the 'current' 'Sustainable Design and Construction' SPG (GLA, 2014b) (i.e. pre-September 2020 land use class definition). Trips associated with the PFS parcel do not include trips by electric vehicles, as emissions associated with such vehicles will be minimal (restricted to PM_{10} and $PM_{2.5}$ emissions associated with road, tyre and break wear only).

Table 5-8: TEB Calculation

Land Use Class [a] (Guidance Category)	GIA / Residences (m^2 / No. Dwellings)	Transport Benchmark Rates (kg / m^2 / annum)		Proposed Development TEB (kg / annum)	
		NO_x	PM_{10}	NO_x	PM_{10}
Retail (A1)[a]	19,661	0.219	0.039	4,306	773
Office (B1)[b]	19,851	0.011	0.002	226	41
Residential (C3)	644	0.56	0.10	359	64
Total	-	-	-	4,891	878

[a] Land use classes A1 - A3 have been classified as 'A1', following the approach taken by the 2020 AQA Addendum. All other land uses have been assumed to be associated with the proposed 'B1' land use as this results in a lower benchmark, thus providing a more conservative assessment.

Table 5-9: Proposed Development Trip Generation

Land Use Class (Guidance Category) [a]	Trips / Day	Trips / Annum	Average Distance Travelled / Trip (km)	Distance Travelled / Annum (km)
Retail (A1)	1,954 [b]	713,210	5.9	4,207,939
Office (B1)	60	21,900	7.7	168,630
Residential (C3)	241	87,965	3.7	325,471
Total	2,255	823,075	-	4,702,040

[a] Land use classes A1 - A3 have been classified as 'A1', following the approach taken by the 2020 AQA Addendum.

[b] The net change in vehicle trips associated with the August 2022 proposed development is assumed to be entirely associated with the retail land use; this is a worst-case assumption.

Table 5-10: Proposed Development Transport Emission Calculation

Land Use Class (Guidance Category)	Emissions Factors (g / vehicle-km)		Annual transport Emissions (kg / annum)	
	NO_x	PM_{10}	NO_x	PM_{10}
Retail (A1)	0.3700	0.0665	1,557	280
Office (B1)	0.3700	0.0665	62	11
Residential (C3)	0.3700	0.0665	120	22
Total	-	-	1,740	313

Table 5-11: Proposed Development Emissions and TEB Comparison (kg/annum)

Land Use Class (Guidance Category)	Benchmarked Emissions		Proposed Development Emissions		Comparison to Benchmarked Emissions	
	NO_x	PM_{10}	NO_x	PM_{10}	NO_x	PM_{10}
Retail (A1)	4,306	773	1,557	280	-2,749	-493
Office (B1)	226	41	62	11	-164	-29
Residential (C3)	359	64	120	22	-239	-43
Total	4,891	878	1,740	313	-3,152	-565

5.40 The calculated transport NO_x and PM_{10} emissions are substantially below the calculated TEBs for the retail, office and residential elements, and the overall

combined transport NO_x and PM_{10} emissions for the application site are below the combined calculated TEBs. As such, the application site (as amended by the August 2022 proposed development) is judged to be substantially better than 'air quality neutral' in terms of transport emissions when the 'current' air quality neutral guidance is applied. I.e. there is no material change to the outcome of the 2020 AQA Addendum.

'Consultation Draft' Air Quality Neutral Guidance Assessment; Application Site

5.41 In November 2021 a consultation draft version of the 'London Plan Guidance; Air Quality Neutral' (GLA, 2021a) was published for consultation by the GLA (see Paragraphs 3.12 and 3.13 and Appendix D). The calculated 'air quality neutrality' of the application site (as amended by the August 2022 proposed development), in accordance with the consultation draft guidance, is set out below.

5.42 The air quality neutral calculation and comparison of transport emissions and TEBs for the application site (as amended by the August 2022 proposed development) are described in Table 5-12 to Table 5-13. Land use categories specified have been defined using the categories provided by the consultation draft 'London Plan Guidance; Air Quality Neutral' (GLA, 2021a). Trips associated with the PFS parcel do not include trips by electric vehicles, as emissions associated with such vehicles will be minimal (restricted to PM_{10} and $PM_{2.5}$ emissions associated with road, tyre and break wear only).

Table 5-12: Proposed Development TEBs

Land Use [a] (Guidance Category)	GIA / Residences (m^2 / No. Dwellings)	Standard Benchmark Trip Rate (trips / m^2 /annum)	TEB (trips / annum)
Restaurant / Café [a]	19,661	137	2,693,557
Office / Light Industrial [b]	19,851	1	19,851
Residential	644	114	73,416
Total	-	-	2,786,824

[a] Two categories defined by the guidance ('restaurant / café' and 'Retail (Convenience)') are considered to be appliable to the proposed A1 – A3 land use; of these two options, the definition of 'restaurant / café' results in a lower benchmark and more conservative assessment; as such, this definition has been applied. All other land use classes (except residential) have been assumed to be associated with the proposed 'office / light industrial' land use as this results in a lower benchmark, thus providing a more conservative assessment.

Table 5-13: Comparison of Proposed Development Trips Rates and BEBs

	TEB (trips / annum)	Development Trip Rate (trips / annum)	Comparison (trips / annum)
Total	2,786,824	823,639	-1,963,185

5.43 The calculated overall combined trip rate associated with the application site (as amended by the August 2022 proposed development) is substantially below the calculated combined TEB. Therefore, the application site (as amended by the August 2022 proposed development) can be considered to be substantially better than 'air quality neutral' in terms of transport emissions (i.e. there is material change to the outcome of the 2020 AQA Addendum), when the consultation draft air quality neutral guidance is applied.

Summary

5.44 The PFS parcel (as amended by the August 2022 proposed development) has been determined to be better than 'air quality neutral' in terms of transport emissions in the context of both the 'current' guidance (Air Quality Consultants, 2014) and

the 'consultation draft' guidance (GLA, 2021a). As such, when the PFS parcel (as amended by the August 2022 proposed development) is considered in isolation, this results in no material change to the outcome of the 2020 AQA Addendum; i.e. the PFS parcel is better than 'air quality neutral' in terms of transport emis. sions.

5.45 The application site (as amended by the August 2022 proposed development) has been determined to be substantially better than 'air quality neutral' in terms of transport emissions in the context of both the 'current' and the consultation draft guidance. As such, when the whole application site (as amended by the August 2022 proposed development) is considered, this results in no material change to the outcome of the 2020 AQA Addendum in the context of the whole site; i.e. the application site is substantially better than 'air quality neutral' in terms of transport emissions.

Air Quality Neutral; Building Emissions

5.46 The 2020 AQA Addendum (ACE, 2020) found calculated development building NO_x emissions to be below the calculated Building Emission Benchmark (BEB). On this basis, the August 2020 amended proposed development was judged to be 'air quality neutral' in terms of transport emissions.

5.47 The energy strategy associated with the PFS parcel (as amended by the August 2022 proposed development) will be all-electric and, therefore, will not have any associated on-site emissions. As such, there is no potential for the building emissions associated with the PFS parcel to cause the PFS parcel or the application site to be worse than 'air quality neutral'; i.e. there is no potential for material change to the outcomes of the 2022 AQA Addendum, regardless of any changes to the relevant guidance.

5.48 There are no changes to cumulative schemes that would have the potential to materially change the outcomes of the 2020 AQA Addendum, as the presence of cumulative schemes does not form part of the assessment criteria.

5.49 There are no changes to air quality baseline conditions that would have the potential to materially change the outcomes of the 2020 AQA Addendum, as the baseline air quality conditions do not form part of the assessment criteria.

6.0 CONCLUSIONS

6.1 This Air Quality Technical Note has been prepared to consider whether changes to the design of the August 2022 proposed development, changes to relevant legislation, policy, guidance and tools, to cumulative schemes and changes to air quality baseline conditions will materially alter the conclusions of the 2020 AQA Addendum (ACE, 2020).

6.2 The outcome of the 2020 AQA Addendum assessment of potential construction dust impacts would not materially change; i.e. following implementation of the mitigation considered within the 2020 AQA Addendum, residual impacts would be 'not significant'.

6.3 The outcome of the 2020 AQA Addendum assessment of potential impacts associated with development-generated construction traffic would not materially change.

6.4 The outcome of the 2020 AQA Addendum assessment of potential impacts associated with development-generated completed development traffic at off-site receptors would not materially change; i.e. the overall effect of development-generated completed development traffic would be 'not significant'.

6.5 The outcome of the 2020 AQA Addendum assessment of potential impacts associated with development-generated completed development traffic would not materially change; i.e. the site is suitable for its proposed end-use.

6.6 The PFS parcel (as amended by the August 2022 proposed development) in isolation is considered to be better than 'air quality neutral' in terms of transport emissions in the context of both the 'current' guidance and the 'consultation draft' guidance; i.e. no material change to the outcome of the 2020 AQA Addendum is predicted. Furthermore, the whole application site (as amended by the August 2022 proposed development) has been determined to be substantially better than 'air quality neutral' in terms of transport emissions in the context of both the 'current' and the consultation draft guidance; i.e. there in no material change to the outcome of the 2020 AQA Addendum in the context of the whole site.

6.7 The outcome of the 2020 AQA Addendum assessment of 'air quality neural' I terms of building emissions would not materially change; i.e. both the PFS parcel and the application site are better than air quality neutral' in terms of building emissions.

6.8 Overall, it is considered that the proposed changed to the development, changes to legislation, policy, guidance and tools, updated list of cumulative schemes and changes to baseline conditions would not materially affect the outcomes of the 2022 AQA Addendum.

7.0 REFERENCES

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Appendix A Glossary

Abbreviations	Meaning
AADT	Annual Average Daily Traffic
ACE	Ardent Consulting Engineers Ltd.
AQA	Air Quality Assessment
AQAP	Air Quality Action Plan
AQTN	Air Quality Technical Note
ASR	Annual Status Report
BEB	Building Emission Benchmark
BOH	Back of House
CHP	Combined Heat and Power
EIA	Environmental Impact Assessment
EIL	Environmental Impact Letter
EV	Electric vehicle
GIA	Gross Internal Area
GLA	Greater London Authority
HDV	Heavy Duty Vehicle; a vehicle with a gross vehicle weight greater than 3.5 tonnes, includes Heavy Goods Vehicles and buses
LBC	London Borough of Camden
MMA	Minor Material Amendment
NAQO	National Air Quality Objective
NO_2	Nitrogen dioxide
NO_x	Nitrogen oxides
NPPF	National Planning Policy Framework
PC	Process Contribution
PFS	Petrol Filling Station
PM	Particulate matter
PM_{10} or $PM_{2.5}$	Small airborne particles less than 10/2.5 µg in diameter
Receptor	A location where the effects of pollution may occur
TEB	Transport Emission Benchmark

Appendix B Proposed Development Ground Floor Layout

Figure B.1: Proposed PFS Parcel Ground Floor Layout

(Data taken from Makower Architects drawing no. -CGY-MAK-XX-00-DR-A-02-150 Rev. PI)

Appendix C National Air Quality Objectives

C1.1 National Air Quality Objectives (NAQOs) were defined by The Air Quality Strategy (Defra, 2007) and enshrined in regulations by the Air Quality Standards Regulation (Statutory Instrument, 2010, No 1001) and Air Quality Standards (Amendment) Regulations (Statutory Instrument, 2016 No. 1184) which implemented the European Union Directive on ambient air quality and cleaner air for Europe (Directive 2008/50/EC). Relevant objectives are set out in Table C-1.

Table C.1: NO_2, PM_{10} and $PM_{2.5}$ Objectives

Pollutant	Time Period	Objective
Nitrogen Dioxide (NO_2)	1-hour mean	200 µg/m^3 not to be exceeded more than 18 times a year
	Annual mean	40 µg/m^3
Particulate Matter (PM_{10})	24-hour mean	50 µg/m^3 not to be exceeded more than 35[12] times a year
	Annual mean	40 µg/m^3 [13]
Particulate Matter ($PM_{2.5}$)	Annual mean	25 µg/m^3 [14]
	Annual mean	20 µg/m^3 [15]
	Exposure reduction target	15% reduction between 2010 and 2020 at Urban Background sites

C1.2 Analysis of long-term monitoring data suggests that if the annual mean nitrogen dioxide (NO_2) concentration is less than 60 µg/m^3 then the 1-hour

[12] 7 times a year for Scotland

[13] 18 µg/m^3 for Scotland

[14] 12 µg/m^3 for Scotland

[15] Indicative stage 2 limit value post 2020, derived based on the exposure reduction target of a 15% reduction between 2010 and 2020. This value has been used as the relevant air quality objective throughout this assessment in order to ensure a conservative approach.

mean NO_2 objective is unlikely to be exceeded where road transport is the main source of pollution (Defra, 2016). This concentration has therefore been used in this Air Quality Technical Note to screen whether an exceedance of the 1-hour mean NO_2 objective is likely. Similarly, an annual mean particulate matter (PM_{10}) concentration of 32 µg/m^3 is used to screen whether an exceedance of the 24-hour mean PM_{10} objective is likely.

C1.3 London Local Air Quality Management Technical Guidance 2019 (LLAQM.TG(19) (Mayor of London, 2019) provides guidance to local authorities as to where objectives apply. These are summarised in Table C-2.

Table C-2: Relevant Exposure

Averaging Period	Relevant Locations	Objectives should apply	Objectives **don't** usually apply
Annual mean	Where individuals are exposed for a cumulative period of 6 month in a year	Façades and gardens of residential properties, schools, care homes and hospitals	Façade of offices or other places of work where members of the pubic do not have regular access, hotels and areas where public exposure is expected to be short-term.
24-hour mean	Where individuals are expected to be exposed for 24-hours or longer	As above, with the addition of hotels and gardens of residences	Kerbside sites and areas where the public exposure is expected to be short-term
1-hour mean	Where individuals are expected to spend one hour or longer	As above, with the addition of locations with regular access such as car parks, bus stations, railway stations and any partially enclosed or outdoor location where members of the public might reasonably be expected to spend one hour or longer.	Kerbside sites where members of the public would not be expected to have regular access.

Appendix D Air Quality Neutral Benchmarks

D1 'Current' Guidance; 'Air Quality Neutral Support Update: GLA 80371'

Air Quality Neutral Benchmarks for Buildings

D1.1 Table D.1 shows the Building Emissions Benchmarks (BEBs) set out within the Air Quality Neutral guidance (Air Quality Consultants, 2014), based on the gross internal floor area for each type of development class.

Table D.1: **'Air Quality Neutral' Building Emission Benchmarks (BEBs)**

Land Use Class	NO_x (g/m^2/annum)	PM_{10} (g/m^2/annum)
Class A1	22.6	1.29
Class A3 – A5	75.2	4.32
Class A2 and Class B1	30.8	1.77
Class B2 – B7	36.6	2.95
Class B8	23.6	1.90
Class C1	70.9	4.07
Class C2	68.5	5.97
Class C3	26.2	2.28
D1 (a)	43.0	2.47
D1 (b)	75.0	4.30
Class D1 (c – h)	31.0	1.78
Class D2 (a – d)	90.3	5.18
Class D2 (e)	284	16.3

Gross Internal Area (GIA) is used to define the area.

Air Quality Neutral Emissions Benchmarks for Transport

D1.2 Transport Emission Benchmarks (TEBs) have been defined within the Air Quality Neutral Guidance (Air Quality Consultants, 2014) for NO_x and PM_{10}, for Retail (A1 and A2), Commercial (B1) and living accommodation (C3) use classes. These are set out in Table D.2, below.

Table D.2: **'Air Quality Neutral' Transport Emissions Ben**chmarks (TEBs)

Land Use Class	Benchmark		
	CAZ	Inner	Outer
NO_x (g/m²/annum)			
Retail (A1)	169	219	249
Office (B1)	1.27	11.4	68.5
NO_x (g/dwelling/annum)			
Residential (C3,C4)	234	558	1,553
PM_{10} (g/m²/annum)			
Retail (A1)	29.3	39.3	42.9
Office (B1)	0.22	2.05	11.8
PM_{10} (g/dwelling/annum)			
Residential (C3,C4)	40.7	100	267

Gross Internal Area (GIA) is used to define the area.

D1.3 The emission for comparison against the TEB is calculated for each land-use category as:

trips/annum * average distance per trip * emission rate

D1.4 The average distance per trip and emissions rates should be those set out within the guidance and are shown in Table D.3 and Table D.4.

Table D.3: Average Distance Travelled by Car per Trip

Land Use Class	Distance (km)		
	CAZ	Inner	Outer
Retail (A1)	9.3	5.9	5.4
Office (B1)	3.0	7.7	10.8
Residential (C3,C4)	4.3	3.7	11.4

Table D.4: Emissions Factors

Pollutant	Distance (km)		
	CAZ	Inner	Outer
NO_x	0.4224	0.370	0.353
PM_{10}	0.0733	0.0665	0.0606

D1.5 Where TEBs have not been calculated, the air quality neutrality of a proposed development can be shown through comparison against trip numbers set out in Table D.5.

Table D.5: Benchmark Trips per Annum

Land Use	Number of Trips (trips/m²/annum)		
	CAZ	Inner	Outer
A3	153	137	170
A4	2.0	8.0	-
A5	-	32.4	590
B2	-	15.6	18.3
B8	-	5.5	6.5
C1	1.9	5.0	6.9
C2	-	3.8	19.5
D1	0.07	65.1	46.1
D2	5.0	22.5	49.0

D2 Consultation Draft Guidance; 'London Plan Guidance; Air Quality Neutral'

Air Quality Neutral Benchmarks for Buildings

D2.1 Table D.6 shows the NO_x BEBs set out within the consultant draft 'London Plan Guidance; Air Quality Neutral' (GLA, 2021a) based on the area for various types of development class[16]. The NO_x BEBs are based on achievable emission rates for the type of technology used.

D2.2 The BEB for PM is defined by the consultant draft guidance as being zero. As such, any development that uses plant with solid or liquid fuels (e.g. biomass) for primary or secondary heating will not be 'air quality neutral'.

D2.3 The guidance specifies that "*Backup plant installed for emergency and life safety power supply, such as diesel generators, may be excluded from the calculation of predicted building emissions*", on the basis that it would generally be assumed that emissions associated with such plant would be restricted to operational testing and emergencies.

[16] Separate use classes for commercial uses, including retail and offices, have now been replaced by use class E. If these separate uses are specified in the development proposal, they should be used for this assessment. Where the intended use is not specified, or where use class E has been specified, the benchmark for retail should be used (GLA, 2021a).

Table D.6: BEBs NO_x Emission Rates ($gNO_x/m^2/annum$)

Land Use Class	Individual Gas Boilers	Gas Boiler Network	CHP + Gas Boiler Network	Heat Pumps + Gas Boiler Network
Residential	3.5	5.7	7.8	5.7
Retail	0.53	0.97	4.31	0.97
Restaurants and bars	1.76	3.23	14.34	3.23
Offices	1.43	2.62	11.68	2.62
Industrial	1.07	1.95	8.73	1.95
Storage and distribution	0.55	1.01	4.5	1.01
Hotel	9.47	15.42	38.16	15.42
Care homes and hospitals	9.15	14.9	36.86	14.9
Schools, nurseries, doctor's surgeries and other non-residual institutions	0.9	1.66	7.39	1.66
Assembly and leisure	2.62	4.84	21.53	4.84

Air Quality Neutral Emissions Benchmarks for Transport

D2.4 Table D.7 shows the benchmark trips rates set out within the consultant draft 'London Plan Guidance; Air Quality Neutral' (GLA, 2021a) based on number of residences / GIA for various types of development class[17]. Benchmark trip rates are based on data from TRAVL (Trip Rate Assessment Valid for London) and are defined for different land uses and different areas of London.

[17] Separate use classes for commercial uses, including retail and offices, have now been replaced by use class E. If these separate uses are specified in the development proposal, they should be used for this assessment. Where the separate use is not specified, or where use class E has been specified, the benchmark for office / light industrial should be used (GLA, 2021a).

Table D.7: Benchmark Trip Rates (annual trips/dwelling or m^2)[a]

Land Use	Central Activities Zone	Inner London	Outer London
Residential	68	114	447
Office / Light Industrial	2	1	16
Retail (Superstore)	39	73	216
Retail (Convenience)	18	139	274
Restaurant / Café	64	137	170
Drinking establishment	0.8	8	-
Hot food takeaway	-	32.4	590
Industrial	-	3.9	16.3
Storage and distribution	-	1.4	5.8
Hotel	1	1.4	6.9
Care home / hospital	-	1.1	19.5
Schools, nurseries, doctor's surgeries, other non-residential institutions	0.1	30.3	44.4
Assembly and leisure	3.6	10.5	47.2

[a] Annual trips / dwelling is applicable to proposed residential land use. Annual trips / m^2 is applicable to all other land uses.

Appendix 5
Noise and Vibration Technical Note

ARDENT
CONSULTING ENGINEERS

ST GEORGE WEST LONDON LTD

CAMDEN GOODS YARD: PFS PARCEL – JUNIPER BUILDING REVISIONS

NOISE AND VIBRATION ADDENDUM

REPORT REF.
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August 2022

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REV	ISSUE PURPOSE	AUTHOR	CHECKED	APPROVED	DATE
-	Draft Issue	LD	JG	DRAFT	06.07.22
-	Final	LD	LD	CM	13.07.22
A	Final with updates following legal review	LD	LD	CM	20.07.22
B	Final with minor updates following client review	LD	LD	CM	26.07.22
C	Final following minor updates to scheme	CM	CM	JG	17.08.22
D	Final with minor updates following client review	CM	CM	JG	19.08.22

Distribution

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1. Introduction

1.1 This Noise and Vibration Addendum (NVA) has been produced by Ardent Consulting Engineers (Ardent) on behalf of St George West London Ltd (the 'Applicant') in respect of amendments to the former Petrol Filling Station (PFS) parcel (hereafter referred to as the 'PFS parcel') which along with the Morrison Supermarket parcel (MS parcel) forms part of the Camden Goods Yard development site (hereafter referred to as the 'application site').

1.2 This Noise and Vibration Addendum (NVA) has been prepared in accordance with the National Planning Policy Framework (NPPF), the Noise Policy Statement for England (NPSE) and other relevant policy and guidance detailed in Appendix A.

Application Background

1.3 In June 2017 a full planning application was submitted for the redevelopment of the application site. This application was accompanied an Environmental Statement (the '2017 ES') which reported on the outcomes of an environmental impact assessment (EIA) of the proposed mixed-use development. Planning permission was granted for the mixed-use development in June 2018 under planning permission reference 2017/3847/P (the 'June 2018 Consented Scheme'). This was accompanied by a Section 106 Agreement dated 15th June 2018 (the 'S106 Agreement').

1.4 A Noise and Vibration Assessment accompanied an Environmental Statement Chapter and was prepared by Ardent in July 2017 (report reference: 160630-10) for planning application 2017/3847/P. A Noise and Vibration Assessment Addendum (report reference: 160630-15) followed in October 2017.

1.5 The proposed development was granted permission in June 2018, since which, a number of amendments have been secured, including two Section 73 (S73) applications. The first S73 application related to the Petrol Filling Station (PFS) parcel specifically (application reference: 2020/0034/P) and sought amendments which allowed the insertion of a new development phase (Phase 1a) to allow for a single storey temporary food store to be constructed enabling the development of the MS parcel to come forward sooner. This application was approved in May 2020 and is referred to as the 'May 2020 Consented Scheme'. An updated EIA was undertaken

in January 2020 and reported in an Environmental Implications Letter (the 'January 2020 EIL')

1.6 The second S73 related to amendments to the MS parcel only and did not propose any further amendments to the PFS parcel. This application was approved in December 2020 and is referred to as the 'December 2020 Consented Scheme'. An updated EIA was undertaken in July 2020 and reported in an EIL (the 'July 2020 EIL').

1.7 The 2017 EIA/ES as updated by the January and July 2020 updated EIAs/EILs is hereafter referred to as the 2017 EIA/ES (as amended).

1.8 There have also been a series of non-material amendments to the extant planning permission. The most recent amendment was granted in February 2022 (application reference: 2022/0673/P) for a non-material amendment relating to the PFS parcel to remove the re-provision of the petrol filling station from the scheme description in advance of submission of this S73 application (the 'August 2022 S73 application'). The non-material amendment did not result in a new planning consent and therefore this assessment continues to refer to the December 2020 Consented Scheme.

Scope of Report

1.9 The August 2022 S73 application is for amendments to the consented PFS parcel which comprises the removal of the petrol filling station and replacement with four Electric Vehicle (EV) charging bays; additional office floorspace; rationalisation of plant space at ground floor; and reconfiguration of plant at roof level. For the avoidance of doubt there are no changes proposed to the MS parcel as part of this application. The December 2020 Consented Scheme as amended by the August 2022 proposed amendments are referred to as the 'August 2022 amended proposed development'.

1.10 This NVA is a Technical Appendix to the August 2022 EIL and informs the reported findings . The August 2022 EIL should be read in conjunction with the 2017 EIA/ES (as amended).

1.11 Noise and vibration impacts arising from the August 2022 amended proposed development have been assessed by considering any changes against the December 2020 Consented Scheme, as reported in the July 2020 EIL.

1.12 It Is considered that the baseline considered in the 2017 ES remains valid as there have been no substantial changes in the area, other than at the application site that would materially change the baseline noise environment. Therefore, no further baseline measurements are considered necessary as part of this NVA.

1.13 Changes to local, regional and national policy and guidance have also been considered, as well as effects on the acoustic context of the August 2022 amended proposed development

1.14 The aim of this NVA is to demonstrate to London Borough of Camden (LBC) that the proposed amendments and the amended proposed development as a whole would not give rise to any new or amended significant noise and vibration effects when compared to the conclusions of the 2017 ES (as amended).

Policy Context

1.15 A number of local, regional and national policy and guidance documents have been updated or introduced since the July 2020 EIL. These are summarised in the table below. None of the documents result in a change to the approach of the relevant updated noise assessments or introduce new matters for consideration.

Table 3.1: Policy and Guidance Changes

Policy or Guidance	Issue / Latest Update	Changes / Implications on Proposed Development
NPPF	July 2021	No specific updates in relation to noise and vibration policy that affect the approach or outcome of assessments, but greater emphasis placed on good design.
London Plan	March 2021	Policy D13 in relation to the Agent of Change *"…The Agent of Change principle places the responsibility for mitigating impacts from existing noise and other nuisance-generating activities or uses on the proposed new noise-sensitive development…"* and

		D14 policy aims *"… to reduce, manage and mitigate noise to improve health and quality of life, residential and other non-aviation development proposals should manage noise…"*
Camden SPD - Amenity	January 2021	Emphasis is placed on good design and managing impacts of development. Key messages in relation to noise are as follows: • *The Council will assess the impact of noise and vibration through the consideration of acoustic reports submitted by applicants.* • *Noise mitigation (where appropriate) is expected to be incorporated into developments at the design stage.* • *The Council will secure mitigation measures through planning condition or legal agreement where necessary.* • *The Council will adopt the 'agent of change' principle.*
Design Manual for Roads and Bridges (DMRB) LA111 Noise and vibration – Rev 2	May 2020	Magnitude of impact tables retained from previous version, no substantive changes that affect the approach or outcomes of the assessment of changes to road traffic noise.

2. Background Information

Historic PFS

2.1 Prior to the 2018 Consented Scheme, the former Morrisons petrol filling station consisted of eight pumps, allowing up to eight vehicles to refuel at any one time. The previous arrangement is shown in the photograph at Figure 2.1 below.

Figure 2.1: Historic Petrol Filling Station (Source: Google Maps)

December 2020 Consented Scheme

2.2 The extant planning permission seeks to retain the petrol filling station element with eight fuel pumps and provided circa 7,000sqm of office floor space. The December 2020 Consented Scheme was to be accessed from Chalk Farm Road, with two separate ingress and egress points.

2.3 Mechanical plant was consented to be located on first and second floor level, and at roof level. Mechanical plant noise levels were to be controlled by planning condition 10 which covers all plant to be installed on the parcel.

August 2022 Amended Proposed Development

2.4 This August 2022 S73 application seeks to amend the December 2020 Consented Scheme by removing the petrol filling station element to provide four EV charging bays, additional office floorspace, rationalisation of plant space at ground floor and reconfiguration of plant at roof level.

2.5 It is not proposed to vary planning condition 10 relating to mechanical plant. Mechanical plant can be selected, located, oriented and if required attenuated to achieve the criteria set out in condition 10 of the December 2020 Consented Scheme. Condition 10 is duplicated below for ease of reference and completeness.

10 Fixed Mechanical plant noise

Prior to installation of the relevant plant/ machinery/ equipment, details shall be submitted to and approved in writing by the Council, of the external noise level emitted from that plant/ machinery/ equipment and mitigation measures as appropriate. The mitigation measures shall ensure that the external noise level emitted from plant, machinery/ equipment will be lower than the lowest existing background noise level by at least 10dBA, by 15dBA where the source is tonal, as assessed according to BS4142:2014 at the nearest and/or most affected noise sensitive premises, with all machinery operating together at maximum capacity.

Reason: To ensure that the amenity of occupiers of the development / surrounding premises is not adversely affected by noise from mechanical installations/ equipment, in accordance with Policy A4 of the Camden Local Plan 2017.

3. Noise Impact

3.1 The potential impacts of the proposed amendments to the PFS parcel have been compared against the December 2020 Consented Scheme, as reported in the July 2020 NVA.

3.2 Demolition and construction traffic and operations are expected to be similar, based on information provided by the transport consultants, to those required for the February 2022 consented scheme and would be controlled via the Construction Logistics Plan (CLP) and Construction Environment Management Plan (CEMP) produced in accordance with LBC Pro-Forma. The proposals for the MS parcel remain unchanged. Therefore, the conclusions of the 2017 ES (as amended) would remain valid. Demolition and construction traffic will not be considered further in this NVA.

3.3 Mechanical plant associated with the December 2020 consented scheme is controlled by planning condition. The August 2022 amended proposed development rationalises plant on lower floors and reconfigures and optimises roof mounted plant. The plant would be selected, located, oriented and if necessary attenuated to meet the requirements of the December 2020 consented scheme, planning condition 10. The proposals for the MS parcel remain unchanged. Therefore the conclusions of the 2017 ES (as amended) would remain valid and noise levels from mechanical plant have not been considered further in this NVA.

3.4 The convenience store and the office would be serviced via the service yard to the rear of the building on the PFS parcel. For the other uses at the PFS parcel, deliveries would be less frequent and therefore would be accommodated within the existing delivery bays on Chalk Farm Road.

3.5 Further details of the delivery and servicing arrangements would be provided within a Delivery and Servicing Management Plan (DSMP), as secured by the relevant Section 106 Agreement. This would be prepared and discharged prior to occupation. The proposals for the MS parcel remain unchanged. Therefore the conclusions of the 2017 ES (as amended) remain valid and servicing noise has not been considered further in this NVA.

3.6 It is considered that the only change that would result in impacts on the acoustic environment relate to the removal of the petrol filling station and changes in the

number of vehicle movements associated with the August 2022 amended proposed development.

3.7 As advised by the transport consultants within their Transport Statement (TS) the majority of users of the petrol filling station are non-primary, i.e., they do not make specific trips to the petrol filling station as the ultimate destination. Rather the use of the petrol filling station is incidental as a pass by or when accessing other services in the area. It is considered in the TS that this split would be 5% primary and 95% non-primary.

3.8 Acoustically this means that the removal of the petrol filling station would not necessarily result in a substantial reduction in noise levels on the surrounding roads within the study area as the majority of vehicles (95%) would still be present on the road network. The proposals for the MS parcel remain unchanged. Accordingly, adopting a conservative approach, the conclusions of the 2017 ES (as amended) remain valid

3.9 The proposed amendments include four EV charging bays. These would be rapid chargers and vehicles would be on the parcel for approximately 30 minutes to receive a full charge. It is also considered that the majority of the users of the EV charging bays would be non-primary users. For the EV charging bays non-primary users are expected to account for 80% of users; however, it is clear that there would be a substantial reduction in vehicle activity associated with the site when compared with the consented scheme.

3.10 Heavy goods vehicles (HGVs) (in particular petrol tankers) that would have directly served the PFS parcel of the February 2022 consented scheme (primary users) would no longer be required as a result of the proposed amendments so their removal would lead to a measured reduction of these vehicles on the road network. The HGVs that would be classed as non-primary would still be present on the network, but no non-primary HGVs would access the PFS parcel.

3.11 Table 3.1 shows the breakdown in terms of Annual Average Weekday Traffic associated with the February 2022 Consented Scheme (PFS parcel only) and the proposed amendments to the PFS parcel. The proposals for the MS parcel remain unchanged. Accordingly, the conclusions of the 2017 ES (as amended) remain valid.

Table 3.1: December 2020 Consented Scheme PFS Parcel versus August 2022 Amended Proposed Development PFS Parcel Trip Generation

PFS Parcel Proposals	AAWT	HGV (%)
December 2020 Consented Scheme (petrol filling station + Offices)	1,392	74 (5%)
PFS parcel proposed amendments (EV Charging, Retail, Offices, Restaurant /Café)	370	15 (4%)
Net Change	-1,022	-59

3.12 At low-speed electric vehicles can be quieter than petrol and diesel equivalents. Whilst the surrounding area is dominated by road traffic noise it would be expected that noise in the immediate vicinity of the EV bays would be lower than if trafficked by equivalent petrol or diesel vehicles.

3.13 Furthermore, as the number of vehicles accessing the PFS parcel is reduced, the amount of manoeuvring and door slamming events would be lower when comparing the December 2020 Consented Scheme.

3.14 It is not possible to quantify the change in noise from the December 2020 Consented Scheme to the August 2022 amended proposed development. This is due to the fact that the majority of vehicle movements that would have accessed the PFS Parcel still being present on the surrounding road network, the non-primary users. However the above discussion demonstrates that vehicle movements and therefore noise associated with the PFS parcel would be expected to reduce as a result of the August 2022 amended proposals.

3.15 There will be no changes to noise emissions from the MS parcel as a result of the August 2022 amended proposals.

4. Summary and Conclusions

4.1 This NVA has been produced by Ardent on behalf of St George West London Ltd in relation to the August 2022 amended proposed development at the application site.

4.2 This NVA assess the noise and vibration impacts of the proposed amendments and of the August 2022 amended proposed development as a whole including the PFS parcel and MS parcel.

4.3 It is expected that there would be a substantial reduction in vehicle movements at the PFS parcel as a result of the removal of the petrol filling station and a slight overall reduction in vehicle movements on the surrounding road network. Therefore, noise levels associated with the August 2022 amended proposed development would be correspondingly lower. There would be no changes to the MS parcel traffic flows associated with the August 2022 amended proposed development.

4.4 The move from petrol and diesel vehicles to electric vehicles at the PFS parcel would furthermore reduce the number of impulsive noise events, associated with door slams for example, and locally reduce the level of noise from manoeuvring vehicles.

4.5 It is considered that the proposed amendments would lead to a slight reduction in noise associated with the August 2022 amended proposed development when compared to the December 2020 consented scheme. Therefore the August 2022 amended proposed development would not have a greater noise impact and as such the conclusions of the 2017 ES (as amended) remain valid.

APPENDIX A

RELEVANT POLICY & GUIDANCE

National Planning Policy Framework (NPPF) – July 2021

Under the NPPF: paragraph 185 of Section 15, with regard to environmental noise; Planning policies and decisions should aim to: -

- mitigate and reduce to a minimum, potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life;
- identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

Camden Council Supplementary Planning Document – Amenity (Adopted 15 January 2021)

The Camden Council Supplementary Planning Documents (SPDs) are planning guidance documents which support the policies in the Camden Local Plan 2017. This SPD provides information on key amenity issues within the borough and includes a noise and vibration section relating to Local Plan Policy A1 – Managing the impact of development.

The SPD provides guidance in relation to noise for the following:

- Assessing the impact of noise and vibration and guidance on when an acoustic report is required for an application
- The noise and vibration thresholds against which the council considers the impact on health and wellbeing;
- Mitigation of noise impacts;
- The Agent of Change principle
- Requirements of acoustic reports regarding the information contained within reports;
- Internal noise and vibration levels in buildings;
- Assessment of plant and other noise generating equipment;
- Food drink and entertainment noise; and
- Delivery Management

The SPD provides clarification and guidance in a number of areas such as mitigation measures to control noise and vibration at proposed developments. The SPD also expands upon assessment methodologies and criteria and where deemed necessary, provides methodologies and criteria which are additional to those required by national standards and guidance.

The London Plan 2021

The latest version of the London Plan, as published in March 2021, provides an overall strategic plan for London, setting out an integrated economic, environmental, transport and social framework for the development of London over the next 20–25 years. The 'Publication London Plan' brings together the geographic and locational aspects of the Mayor's other strategies, including a range of environmental issues such as climate change (adaptation and mitigation), air quality, noise and waste.

The most relevant guidance in terms of the impact and assessment of noise is found within Policy D14: Noise, which states:

"…Policy D14 Noise

A *In order to reduce, manage and mitigate noise to improve health and quality of life, residential and other non-aviation development proposals should manage noise by:*

1) avoiding significant adverse noise impacts on health and quality of life

2) reflecting the Agent of Change principle as set out in Policy D13 Agent of Change

3) mitigating and minimising the existing and potential adverse impacts of noise on, from, within, as a result of, or in the vicinity of new development without placing unreasonable restrictions on existing noise-generating uses

4) improving and enhancing the acoustic environment and promoting appropriate soundscapes (including Quiet Areas and spaces of relative tranquillity)

5) *separating new noise-sensitive development from major noise sources (such as road, rail, air transport and some types of industrial use) through the use of distance, screening, layout, orientation, uses and materials – in preference to sole reliance on sound insulation*

6) *where it is not possible to achieve separation of noise-sensitive development and noise sources without undue impact on other sustainable development objectives, then any potential adverse effects should be controlled and mitigated through applying good acoustic design principles*

7) *promoting new technologies and improved practices to reduce noise at source, and on the transmission path from source to receiver.*

B *Boroughs, and others with relevant responsibilities, should identify and nominate new Quiet Areas and protect existing Quiet Areas in line with the procedure in Defra's Noise Action Plan for Agglomerations…"*

Policy D14: Noise refers to Policy D13: Agent of Change, which states:

"*…Policy D13 Agent of Change*

A *The Agent of Change principle places the responsibility for mitigating impacts from existing noise and other nuisance-generating activities or uses on the proposed new noise-sensitive development. Boroughs should ensure that Development Plans and planning decisions reflect the Agent of Change principle and take account of existing noise and other nuisance generating uses in a sensitive manner when new development is proposed nearby.*

B *Developments should be designed to ensure that established noise and other nuisance-generating uses remain viable and can continue or grow without unreasonable restrictions being placed on them.*

C *New noise and other nuisance-generating development proposed close to residential and other noise-sensitive uses should put in place measures to mitigate and manage any noise impacts for neighbouring residents and businesses.*

D Development proposals should manage noise and other potential nuisances by:

1) ensuring good design mitigates and minimises existing and potential nuisances generated by existing uses and activities located in the area

2) exploring mitigation measures early in the design stage, with necessary and appropriate provisions including ongoing and future management of mitigation measures secured through planning obligations

3) separating new noise-sensitive development where possible from existing noise-generating business and uses through distance, screening, internal layout, sound-proofing, insulation and other acoustic design measures.

E Boroughs should not normally permit development proposals that have not clearly demonstrated how noise and other nuisances will be mitigated and managed…"

Design Manual for Road and Bridges, Volume 11 (LA111 – Noise and Vibration

Changes in noise level as a result of additional vehicles on the public highway can be assessed using methodologies presented in Design Manual for Road and Bridges (DMRB LA111),

This guidance document sets out the requirements for noise and vibration assessments from road projects. The construction, operation and maintenance of highway projects can lead to changes in noise and vibration levels in the surrounding environment.

The magnitude of change (in sound level) is defined in Table 3.54a of the guidance for short term and Table 3.54b for long term, as presented in Table 2:

Short term magnitude	Short term noise change (dB $L_{A10,18hr}$ or L_{night})
Major	Greater than or equal to 5.0
Moderate	3.0 to 4.9
Minor	1.0 to 2.9
Negligible	less than 1.0
Long term magnitude	**Long term noise change (dB $L_{A10,18hr}$ or L_{night})**
Major	Greater than or equal to 10.0
Moderate	5.0 to 9.9
Minor	3.0 to 4.9
Negligible	less than 3.0

Table 2 (Table 3.54a and b DMRB, LA 111 - Magnitude of Change)

Noise Policy Statement for England (NPSE)

To avoid and mitigate adverse noise effects on health arising from and impacting on new development, the NPPF makes reference to NPSE. The NPSE was published in March 2010 and covers all forms of noise, other than occupational noise. For the purposes of this report, "Neighbourhood Noise" is most relevant as NPSE defined at paragraph 2.5:

"*neighbourhood noise which includes noise arising from within the community such as industrial and entertainment premises, trade and business premises, construction sites and noise in the street.* "

NPSE introduces three concepts to the assessment of noise in the UK:

- NOEL – No Observed Effect Level – This is the level below which no effect can be detected and below which there is no detectable effect on health and quality of life due to noise.
- LOAEL – Lowest Observable Adverse Effect Level – This is the level above which adverse effects on health and quality of life can be detected.
- SOAEL – Significant Observed Adverse Effect Level – This is the level above which significant adverse effects on health and quality of life occur.

NPSE does not numerically define levels for the NOEL, LOAEL or SOAEL rather it makes it clear that the noise level is likely to vary depending upon the noise source, the receptor and the time of day/day of the week, etc.

National Planning Practice Guidance (2014)

The purpose of the guidance is to complement the NPPF and provide advice on how to deliver its policies.

The purpose of the guidance is to complement the NPPF and provide advice on how to deliver its policies.

The guidance includes a table (as shown in Table 1) that summarises "the noise exposure hierarchy, based on the likely average response" and which offers "examples of outcomes" relevant to the NOEL, LOAEL and SOAEL effect levels described in the NPSE.

Perception	Examples of outcomes	Increasing effect level	Action
Not noticeable	No Effect	No Observed Effect	No specific measures required
Noticeable and not intrusive	Noise can be heard, but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.	No Observed Adverse Effect	No specific measures required
		Lowest Observed Adverse Effect Level	
Noticeable and intrusive	Noise can be heard and causes small changes in behaviour and/or attitude, eg turning up volume of television; speaking more loudly; where there is no alternative ventilation, having to close windows for some of the time because of the noise. Potential for some reported sleep disturbance. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Observed Adverse Effect	Mitigate and reduce to a minimum
		Significant Observed Adverse Effect Level	
Noticeable and disruptive	The noise causes a material change in behaviour and/or attitude, eg avoiding certain activities during periods of intrusion; where there is no alternative ventilation, having to keep windows closed most of the time because of the noise. Potential for sleep disturbance resulting in difficulty in getting to sleep, premature awakening and difficulty in getting back to sleep. Quality of life diminished due to change in acoustic character of the area.	Significant Observed Adverse Effect	Avoid
Noticeable and very disruptive	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects, eg regular sleep deprivation/awakening; loss of appetite, significant, medically definable harm, eg auditory and non-auditory	Unacceptable Adverse Effect	Prevent

Table 1: Noise Exposure Hierarchy, Based on the Likely Average Response.

Calculation of Road Traffic Noise – 1988

For new developments, road traffic noise levels should be predicted in accordance with CRTN. This prediction method uses the traffic flow, vehicle speed, and percentage of heavy-duty vehicles (HDVs, over 3.5 tonnes), road gradient and other factors to calculate noise levels at receptor points.

Control of Pollution Act 1974

The local authority has powers under the Control of Pollution Act 1974 to control noise from construction sites. Section 60 of the Act allows a local authority to serve a notice of its requirements for the control of site noise. This notice may include specification of plant that is or is not to be used, hours during which the construction works can be carried out and levels of noise emission. Section 61 of the Act allows a contractor or developer to take the initiative and agree with the local authority the methods of construction, steps to minimise noise and hours of work.

The Environmental Protection Act 1990

Local authorities have a duty to deal with statutory nuisances under the Environmental Protection Act 1990. For noise to amount to a statutory nuisance, it must be "prejudicial to health or a nuisance" as outlined in Section 79 of the Act. Any proposed development should not result in a statutory nuisance being declared.

Should the Local Authority declare a development to cause a statutory nuisance, an abatement notice can be served to the developer who has up to 21 days to appeal to Magistrates' Court, as detailed in Section 80 of the Act.

The Building Regulations 2010

Building Regulations approvals are required for most new buildings and for most types of works on existing buildings. Part 10 of The Building Regulations 2010 contains provisions, including power for local authorities to test building work, take samples, and provision to ensure compliance. Part E of the Regulation 'Resistance to the passage of sound' is expanded in Approved Document E, which provides robust details to control and mitigate noise within buildings. This Document is separated over four parts which include:

- E1: Protection against sound from other parts of the building and adjoining buildings;
- E2: Protection against sound within dwelling-house etc.;
- E3: Reverberation in the common internal parts of buildings containing flats or rooms for residential purposes;
- E4: Acoustic conditions in schools.

World Health Organisation

The WHO document Guidance on Community Noise specifies additional information for noise affecting noise sensitive receptors and forms the basis of many noise limitations and design ranges for internal and external ambient noise levels. It defines noise as 'a class of sounds that are considered unwanted' (by the listener), 'that adversely affects, or may affect the physiological and psychological wellbeing of people.' Much of the research around this study is based on transportation noise.

Further guidance on the recommended levels is given in the World Health Organisation (WHO) Guidelines for Community Noise. In this document it is stated that:

"*To protect the majority of people from being seriously annoyed during the daytime, the outdoor sound level from steady, continuous noise should not exceed 55 dB L_{Aeq} on balconies, terraces and in outdoor living areas. To protect the majority of people from being moderately annoyed during the daytime, the outdoor sound level should not exceed 50 dB L_{Aeq}."*

WHO also states the following paragraph with regard to the effects of LAmax events in a night-time period:

"For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45dB L_{Amax} more than 10-15 times per night (Vallet & Vernet 1991)."

WHO guidance 'Night Noise Guidelines for Europe' is concerned with the longer-term average noise levels that are covered by the EU Directive on Environmental Noise, although this does appear to suggest external maximum noise levels of around 57dBA outside bedrooms during the night to achieve internal maximum levels of 42dBA.

The World Health Organisation has recently published Environmental Noise Guidelines – for the European Region (2018) to provide recommendations for protecting human health from exposure to noise sources such as transportation (road traffic, railway and aircraft), wind turbine noise and leisure noise.

The guidance document defines the 'strength' of recommendation (for protecting against noise exposure) as either 'strong' or conditional', outlined below.

Strength of Recommendation

"A strong recommendation can be adopted as policy in most situations. The guideline is based on the confidence that the desirable effects of adherence to the recommendation outweigh the undesirable consequences. The quality of evidence for a net benefit – combined with information about values, preference and resources – inform this recommendation, which should be implemented in most circumstances."

"A conditional recommendation requires a policy-making process with substantial debate and involvement of various stakeholders. There is less certainty of its efficacy owing to lower quality of evidence of a net benefit, opposing values and preferences of individuals and populations affected or the high resource implications of the recommendation, meaning there may be circumstances or settings in which it will not apply."

External (free-field) recommendations included in the Environmental Noise Guidelines for the European Region are presented in Table 3 for specific noise sources.

Noise Source	dB L_{den}	dB L_{night}	dB $L_{Aeq,\ 24hr}$ (yearly average)	Recommendation
Road Traffic	53	45	-	Strong
Railway	54	44	-	Strong
Aircraft	45	40	-	Strong
Wind Turbine	45	-	-	Conditional
Entertainment	-	-	70	Strong/Conditional

Table 3: Extract from Environmental Noise Guidelines for the European Region

BS8233:2014 – Guidance on Sound Insulation and Noise Reduction for Buildings

Formerly a Code of Practice, the 2014 revision of BS8233 is now presented and intended as a guidance document. The standard is mainly concerned with building design from an acoustic standpoint. It does however, contain information relevant to environmental noise more specifically by stating guidance for desirable internal noise levels for dwellings and other buildings.

Table 2 of BS8233:2014 provides suitable internal levels for spaces such as open-plan offices and restaurants and notes that an upper and lower noise levels should be considered, as presented in Table 4.

Objective	Typical Situation	Design range dB LAeq,T
Typical noise levels for acoustic privacy in shared spaces	Restaurant	40 - 55
	Open plan office	45 - 50
	Night club, public house	40 - 45
	Ballroom, banqueting hall	35 - 40

Table 4: Extract from Table 2 – Indoor ambient noise levels in spaces when they are unoccupied and privacy is also important

An extract of Table 4 of the document relevant for residential development is reproduced in Table 5.

Activity	Location	07:00 to 23:00 dB L_{Aeq}, 16hour	23:00 to 07:00 L_{Aeq}, 8hour
Resting	Living room	35	-
Dining	Dining room / area	40	-
Sleeping (daytime resting)	Bedroom	35	30

Table 5: Extract from Table 4 – Indoor ambient noise levels in dwellings

Whilst the above criteria is for dwellings, BS8233 states that these recommendations are similar for hotel guestrooms and therefore these have been adopted as the criteria for assessment.

The guidance of BS8233:2014 with regards to external amenity spaces is as follows:

"*For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB $L_{Aeq,T}$, with an upper guideline value of 55 dB $L_{Aeq,T}$ which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited*."

ProPG: Planning and Noise - May 2017

Guidance in ProPG Planning and Noise provides an approach which aims to inform developers, practitioners and local authorities on how potential residential sites should be assessed. ProPG states that the guidance can be used for other types of residential institution and therefore it is considered applicable to the site.

The guidance also builds upon government planning policy that noise should not be treated in isolation and there should be a holistic approach to good acoustic design.

ProPG sets out a 2-stage approach; the first of which is a risk assessment to identify the likelihood of significant adverse impact, then depending on the outcome of this risk assessment the extent of the acoustic design statement required. The graphic in Figure 1 is an extract from ProPG and indicates the level of risk associated with ranges of sound levels and provides some guidance on the likely extent of work associated with progressing a development exposed to these sound levels.

In relation to maximum noise levels, ProPG states that:

"*In most circumstances in noise sensitive rooms at night (e.g. bedrooms) good acoustic design can be used so that individual noise events do not normally exceed 45dB $L_{Amax,F}$ more than 10 times a night. However, where it is not reasonably practicable to achieve this guideline then the judgement of acceptability will depend not only on the maximum noise levels but also on factors such as the source, number, distribution, predictability and regularity of noise events.*"

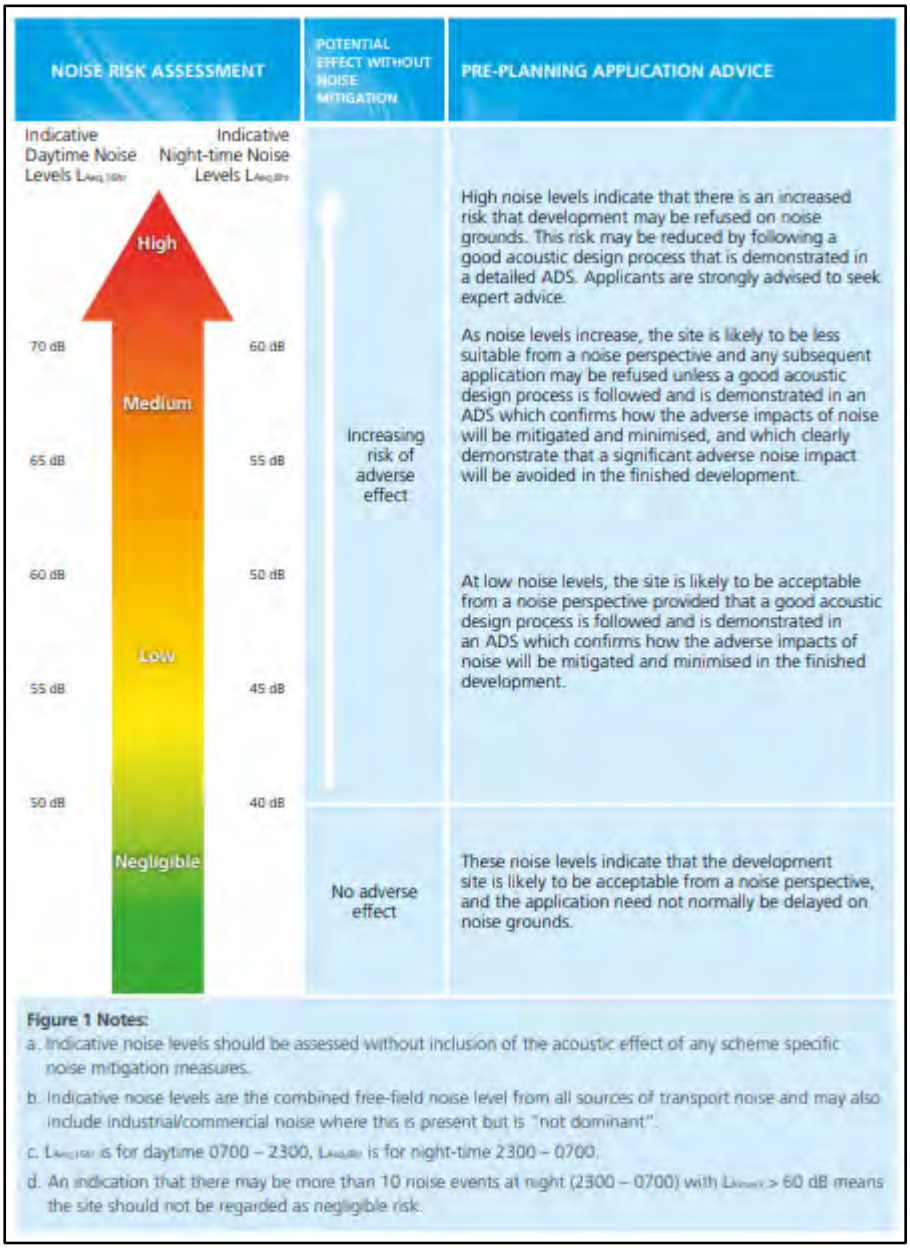

Figure 1: Extract from Figure 1 in ProPG – Initial Site Noise Risk Assessment

The second stage involves four key elements where discussion is expanded on:

- Element 1 – Good Acoustic Design Process
- Element 2 – Internal Noise Level Guidance

- Element 3 – External Amenity Area Noise Assessment
- Element 4 – Assessment of Other Relevant Issues

Having worked through the approach practitioners can present a recommendation to the decision maker.

Acoustics Ventilation and Overheating - Residential Design Guide, January 2020

Acoustics Ventilation and Overheating (AVO) recommends an approach to acoustic assessments for new residential development taking consideration for acoustics, ventilation, and overheating. AVO states that the guidance can be used for other types of residential institution and therefore it is considered applicable to the site.

Section 3 involves a two-level risk assessment approach to estimate the potential impact on occupants in the case of overheating.

The Level 1 site risk assessment is based on external free-field noise levels and the assumed scenario where a partially open window is used to mitigate overheating (Table 3-2 of the guidance).

The sound level reduction from outside to inside for a partially open window is 13dB in this instance. A Level 1 site risk assessment is considered adequate if the site falls within the 'Negligible risk' category. A Level 2 assessment can optionally be undertaken to give more confidence in the case of Low or Medium risk sites, where appropriate. The Level 2 assessment is strongly recommended for 'High' risk sites.

The Level 2 assessment suggests that assessment of the adverse effect from noise exposure should include an estimate of how frequently and for what duration the overheating condition occurs (Table 3-3 of the guidance)

Figure 2 explains the two-level noise assessment procedure for overheating conditions.

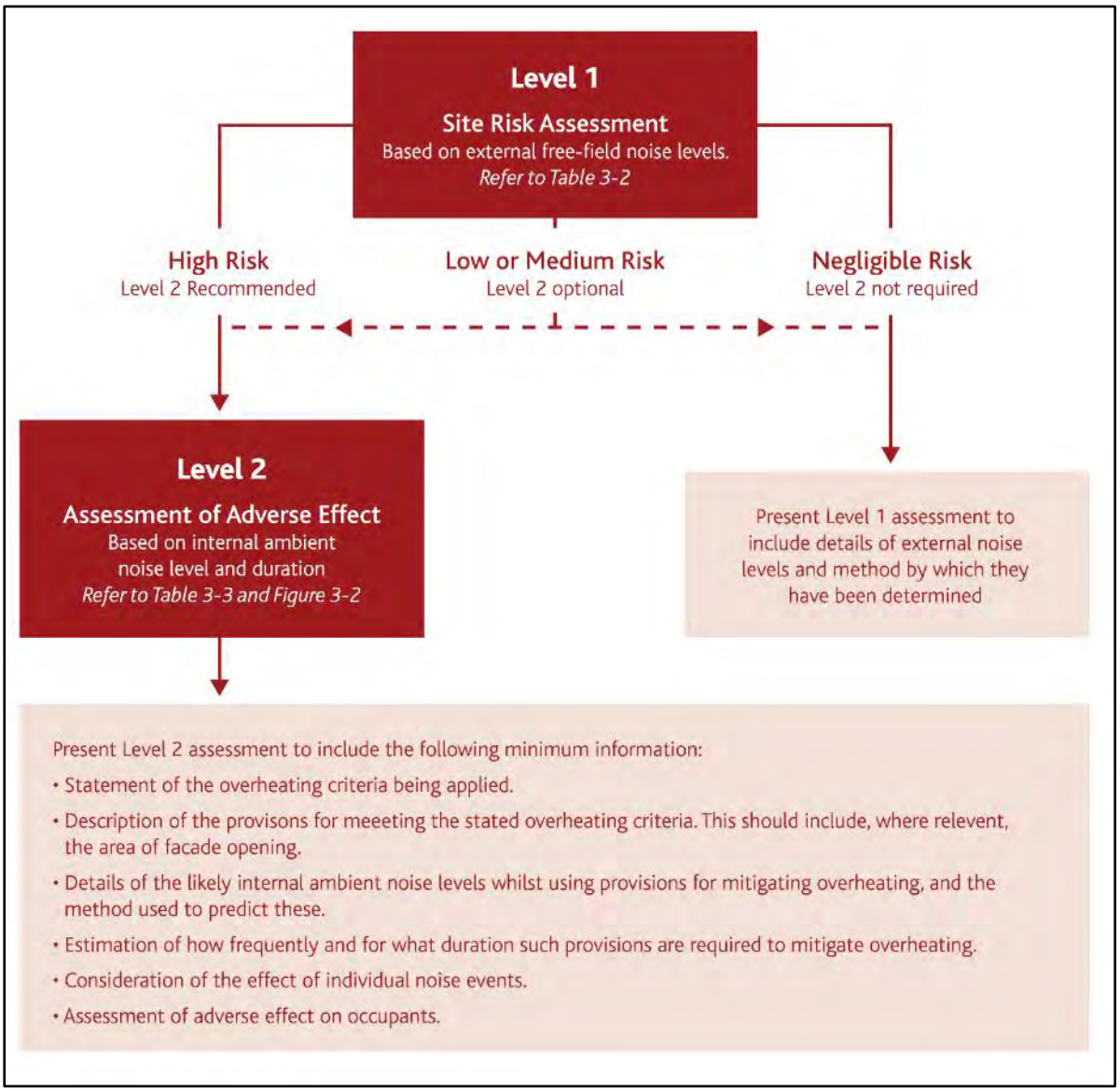

Figure 2: Two-level Assessment Procedure (Figure 3.1 of AVO Guidance)

Figure 3 shows the Level 1 site risk assessment of noise, relating to overheating conditions.

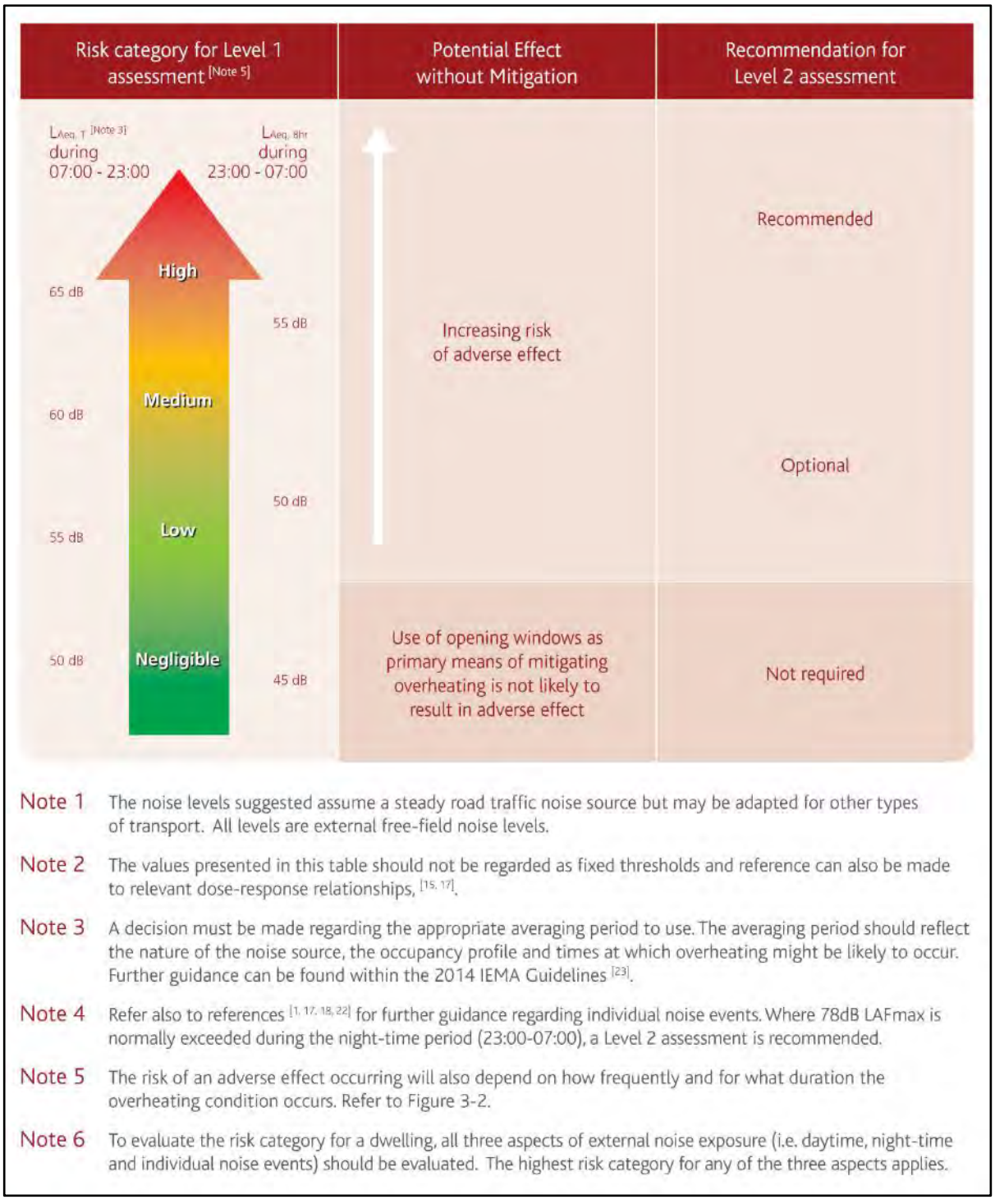

Figure 3: Level 1 Risk Assessment (Figure 3.2 of AVO guidance)

Figure 4 shows the Level 2 site risk assessment of noise, relating to overheating conditions.

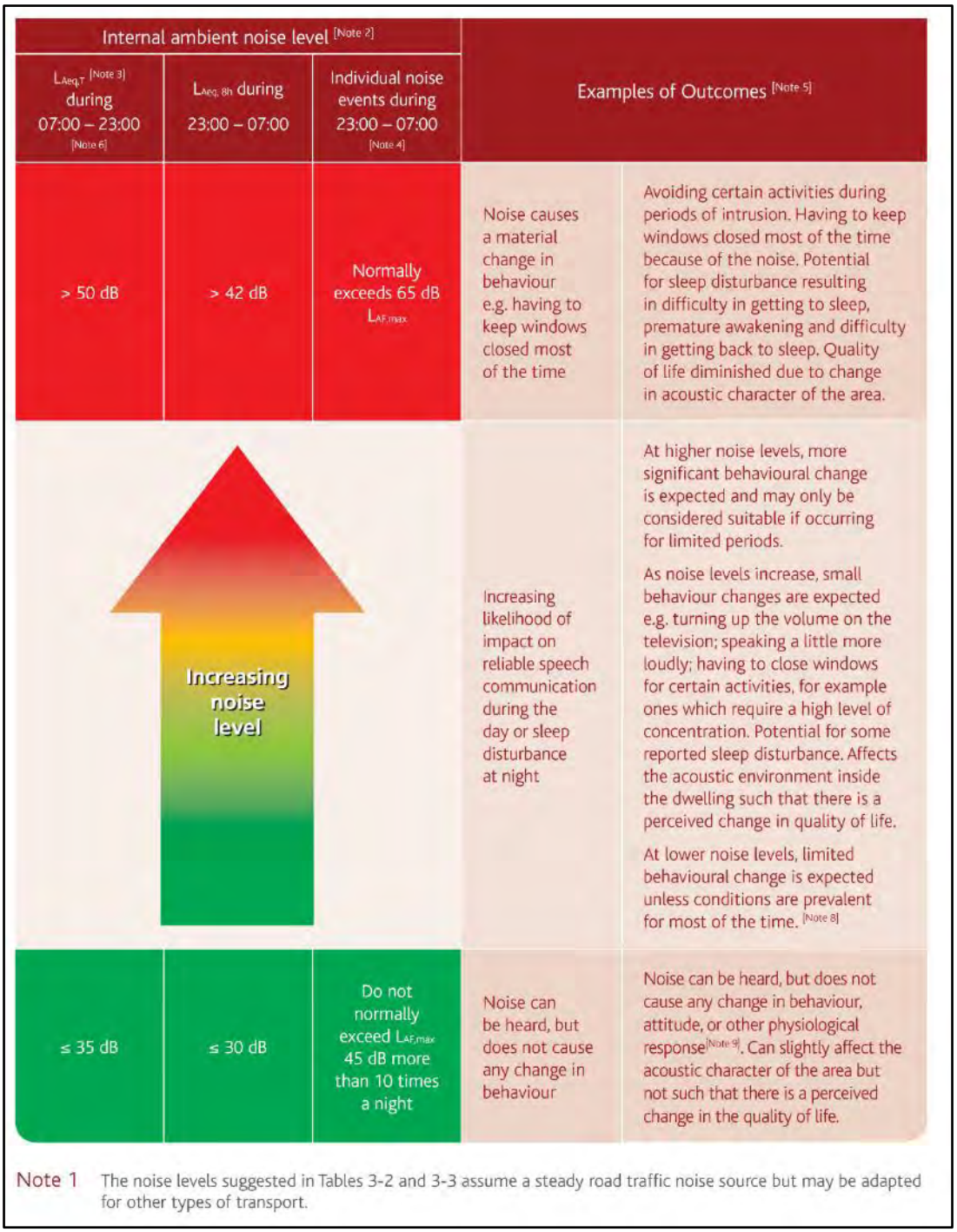

Figure 4: Level 2 Risk Assessment (Figure 3.3 of AVO guidance)

The noise levels suggested in Figure 3 and Figure 4 assume a steady road traffic noise source but may be adapted for other types of transport by taking account of the differing responses to different transport sources.

BS6472-1:2008 – Guide to Evaluation of Human Exposure to Vibration in Buildings - Part 1: Vibration sources other than blasting

This document offers guidance on how people inside buildings respond to vibration: the judgement criteria are more stringent at higher frequencies than in the superseded standard due to changes in the vertical frequency weighting.

Assessment of building vibration with respect to human response: When the appropriately-weighted vibration measurements or predictions have been used to derive the VDV (Vibration Dose Value) for either 16hr (daytime) or 8h (night-time) at the relevant places of interest, their significance in terms of human response can be derived from Table 6, shown below:

Vibration dose value ranges which might result in various probabilities of adverse comment within residential buildings

Place and time	Low probability of adverse comment $m \cdot s^{-1.75}$ 1)	Adverse comment possible $m \cdot s^{-1.75}$	Adverse comment probable $m \cdot s^{-1.75}$ 2)
Residential buildings 16 h day	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Residential buildings 8 h night	0.1 to 0.2	0.2 to 0.4	0.4 to 0.8

NOTE For offices and workshops, multiplying factors of 2 and 4 respectively should be applied to the above vibration dose value ranges for a 16 h day.

Table 6: Vibration Dose Values from BS6472-1:2008

BS4142:2014 Methods for rating industrial and commercial sound

BS4142:2014 uses a comparison between the rating and background sound levels to establish an initial estimate of the likely significance of impact. The standard notes:

a) *Typically, the greater this difference, the greater the magnitude of the impact.*

b) *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.*

c) *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.*

d) *The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.*

The context of the assessment must then be considered, which can significantly alter the outcome of the assessment. Factors that might alter the outcome of the assessment include the absolute level of sound compared to the residual sound level, the character of the sound compared to the residual, the sensitivity of the receptor etc.

Appendix 6
Daylight, Sunlight and Overshadowing, Light Pollution Technical Note

Appendix 6.1
Drawings

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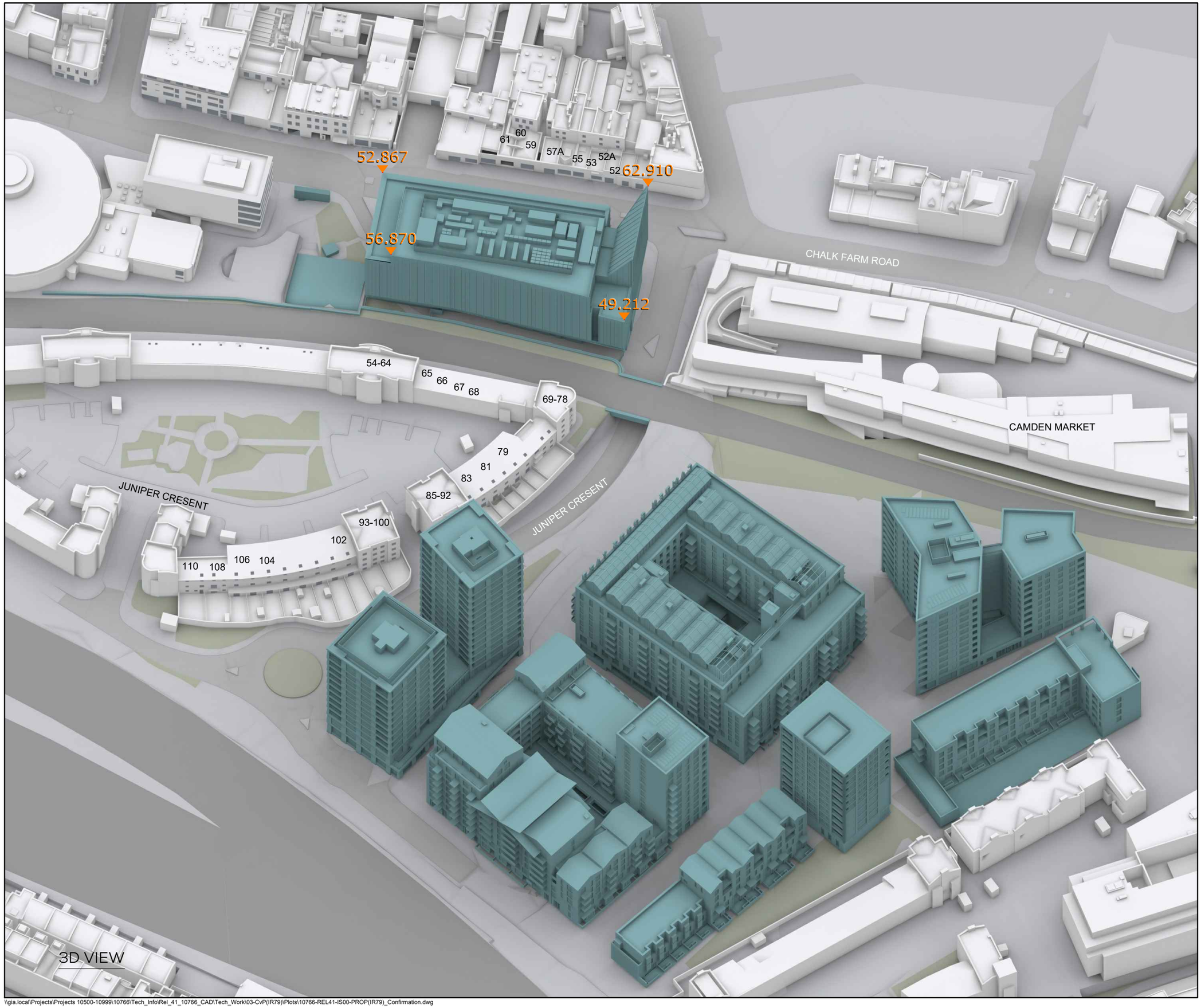

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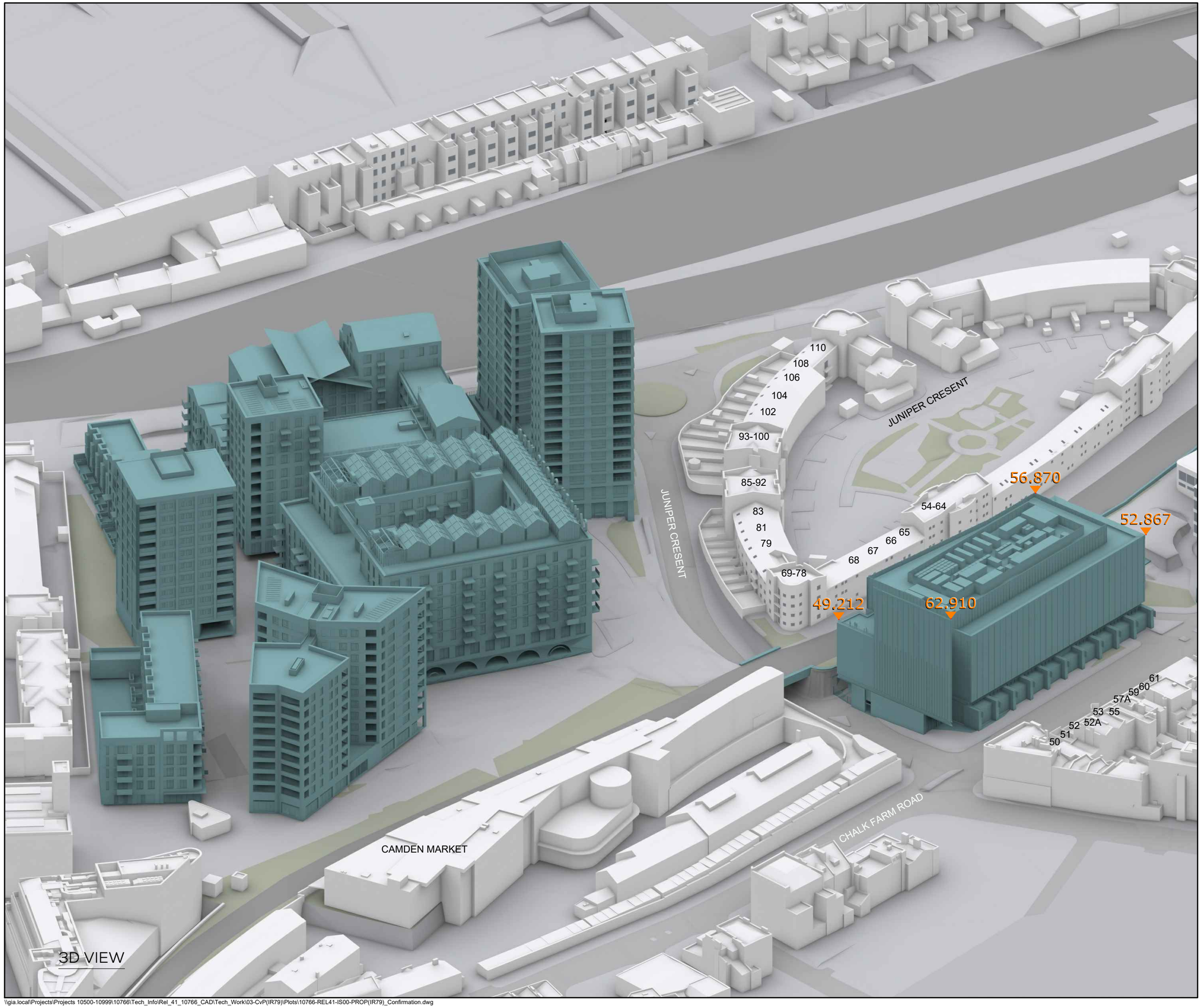

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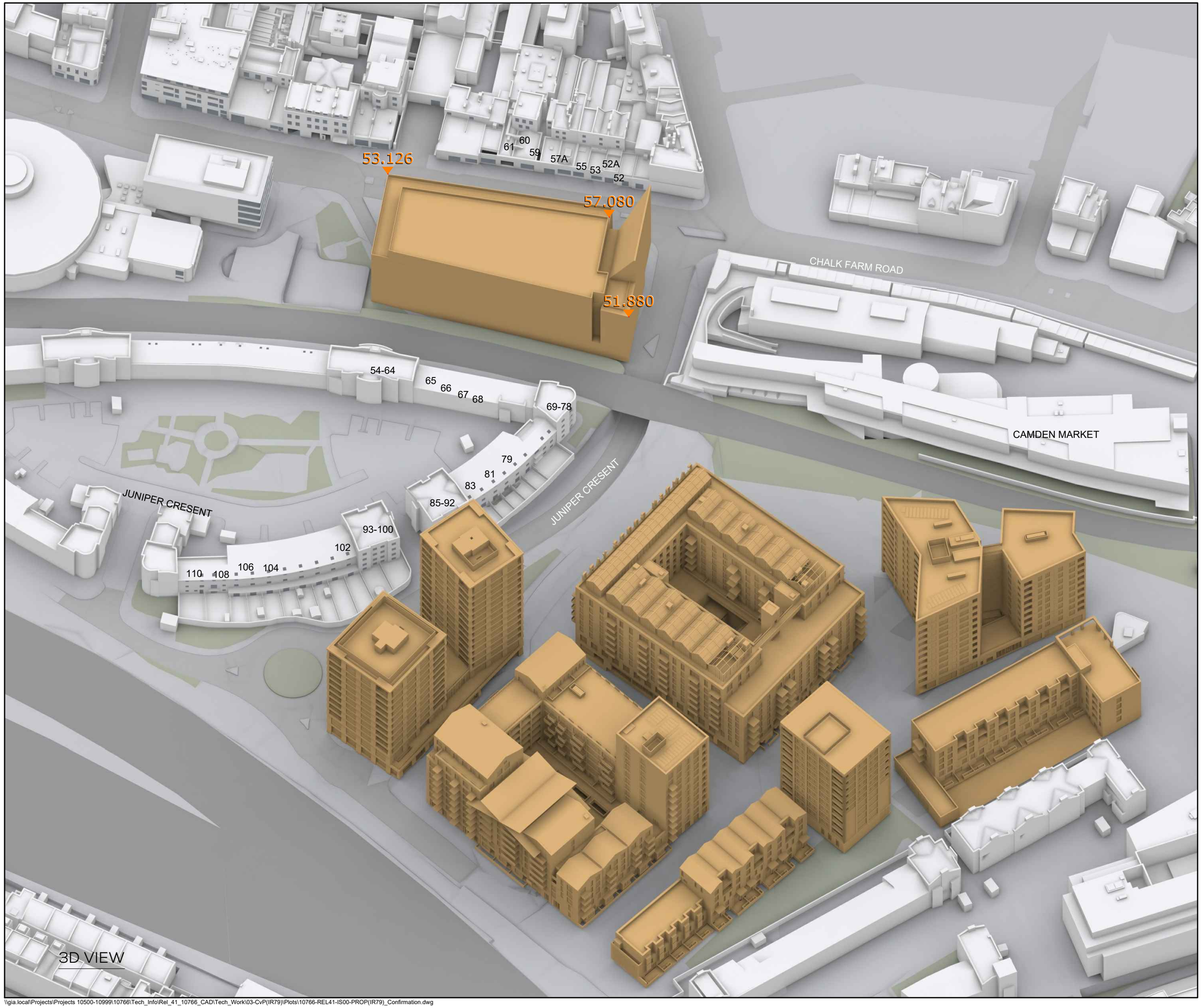

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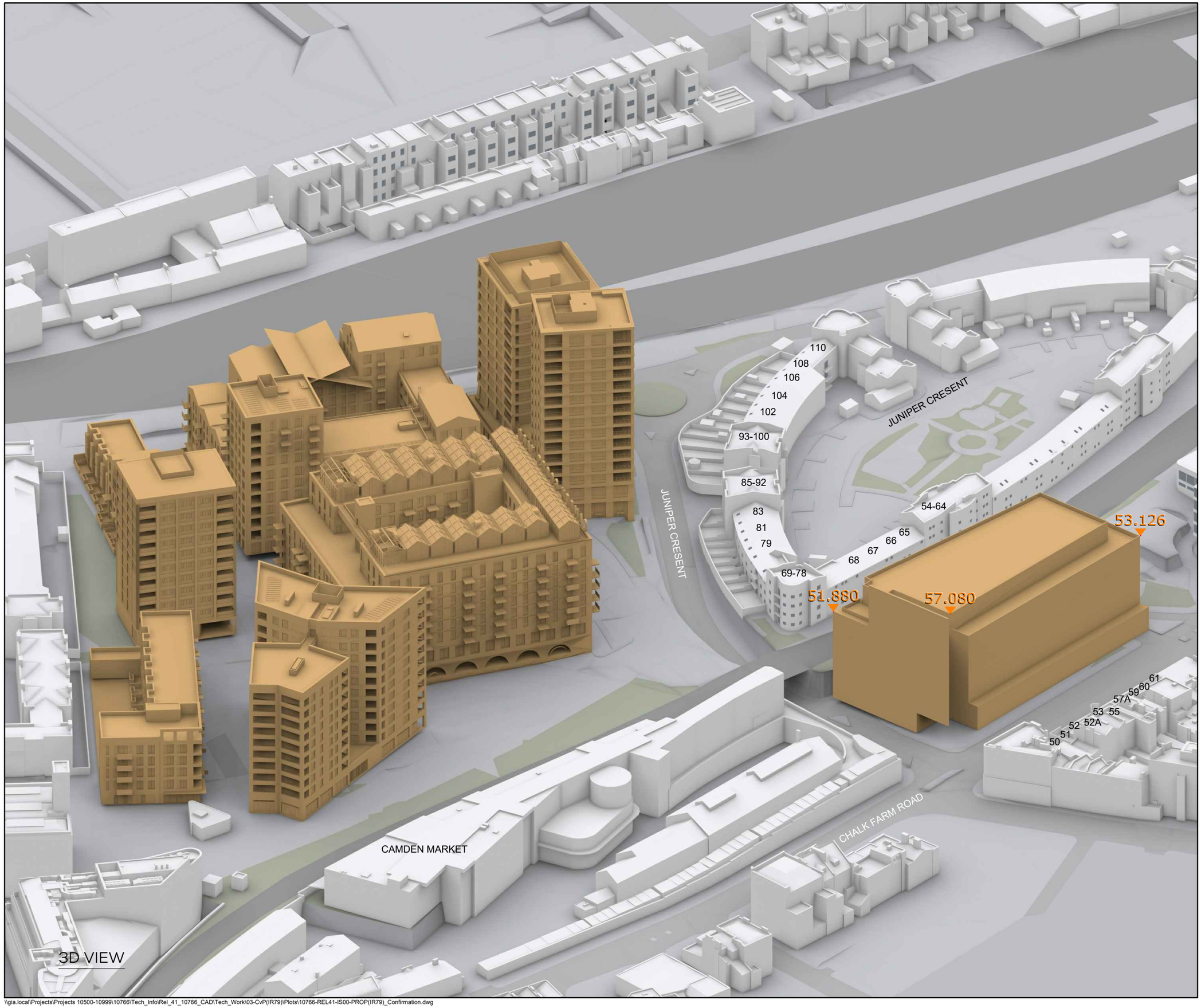

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