



QUINTAIN

BRINGING PROPERTY AND  
PLACES TO LIFE

Quintain Ltd  
2021 GHG Inventory

# INTRODUCTION

## REPORTING SCOPE

### EXECUTIVE SUMMARY

Our Sustainability Policy and Objectives commit to achieving performance beyond compliance and minimum requirements, and to measure and disclose our performance in a transparent way. Alongside our 2021 Sustainability Report, this 2021 GHG Inventory demonstrates how we are progressing our Climate Change and Resource Efficiency objectives.

### OBJECTIVES & APPROACH

We have been collecting data and reporting on our GHG emissions since 2013, and in 2020 reviewed and updated our procedures in line with updated guidance on GHG emissions reporting in accordance with ISO 14064:1 (2018). We also updated our assessment of potential emission sources to determine those that are currently material to understanding our organisational emissions. Our GHG emissions are calculated and reported by implementing the guidance set out in ISO 14064:1 (2018) and in accordance with our *GHG Policy and Data Management Procedures*.

### INFORMATION MANAGEMENT & MONITORING PROCEDURES

Our *procedures* set out the decisions made and actions required to ensure that the data we report is accurate, transparent and comparable; these are available on our website, and details relevant to our GHG Inventory and the transparency of our data are detailed in this document. Our GHG emissions are calculated by multiplying relevant “activity data” by the relevant emission factor; sources of activity data and emission factors are described in our Reporting Boundary and Methodology sections that follow. Our monitoring procedures depend on the type of activity we are measuring; for activities that relate to the consumption of resources such as energy and water, we collect data on monthly and internally report this on a quarterly basis to help identify reduction opportunities. Other types of data are monitored at a frequency appropriate to the activity.

### EXTERNAL ASSURANCE

Our GHG Inventory has been externally assured by BDO who performed a limited assurance engagement in accordance with International Standard on Assurance Engagements (ISAE) 3410, *Assurance Engagements on Greenhouse Gas Statements*.

### EMISSION CATEGORIES

Under ISO 14064, Scope 1, Scope 2 and Scope 3 emissions are replaced with Emission Categories 1 – 6. We use the ‘Scope’ terminology when referring generally to our emissions, and in relation to Scope 3 in particular, as a collective term for all emissions outside our operational control. When setting out our inventory, we use the emission categories identified in ISO 14064. These are outlined below:

| ISO 14064                                                                | GHG Protocol |
|--------------------------------------------------------------------------|--------------|
| Category 1: Direct GHG Emissions <sup>1</sup>                            | Scope 1      |
| Category 2: Indirect GHG Emissions <sup>1</sup> from Imported Energy     | Scope 2      |
| Category 3: Indirect GHG Emissions <sup>1</sup> from Transportation      | Scope 3      |
| Category 4: Indirect GHG Emissions <sup>1</sup> from used Products       | Scope 3      |
| Category 5: Indirect GHG Emissions <sup>1</sup> from the use of Products | Scope 3      |
| Category 6: Indirect GHG Emissions <sup>1</sup> from Other Sources       | Scope 3      |

### REPORTING ORGANISATION & ORGANISATIONAL BOUNDARY

The data published in this GHG Inventory reflects the 2021 GHG emissions for Quintain Ltd. Our organisational boundary includes all of our subsidiaries. Significantly, this includes our Build to Rent business, Quintain Living, and Wembley Park Estate Management Ltd, which manages the public realm at Wembley Park. Other subsidiaries include the holding companies within which our assets reside. All assets included within our Gross Asset Value (GAV) calculations are included within our boundary, in addition to any estate assets and supplies over which we have operational control. Quintain Ireland provides development management services and does not hold any real estate assets. **REPORTING BOUNDARY** We have adopted an operational control approach to our reporting, which means that our Scope 1 and Scope 2 emissions are those over which we have a level of operational control. Our remaining Scope 3 emissions are as a result of upstream and downstream activities that

### OUR OBJECTIVES

#### CLIMATE CHANGE

The pace of global heating is increasing, and there is little dispute that action needs to be taken to quickly prevent runaway climate change and the catastrophic impacts that would have on our buildings, communities and wider society. Reducing greenhouse gas (GHG) emissions through design, construction and in operation is therefore a priority for us, as is ensuring our assets are resilient and adaptable to a changing climate.

#### GHG EMISSIONS

*Objective: To reduce GHG emissions across our value chain, through the consideration of emissions during construction, our own operations and the activities of our tenants in our assets, and through the reporting of actual emissions on an annual basis.*

#### RESOURCE EFFICIENCY

Sustainable consumption helps to ensure that the many natural resources that are fundamental to our health, wellbeing and quality of life will still be available for us to use in the future. By using resources efficiently, we reduce our impact on the environment and improve the overall sustainability of our business and of our occupants through reduced GHG emissions and reduced spend.

#### ENERGY USE & EFFICIENCY

*Objective: To design, construct and operate our assets in an energy efficient manner, identifying opportunities for reductions and over time, reducing overall energy consumption.*

#### WATER USE & EFFICIENCY

*Objective: To design, construct and operate our assets in a water efficient manner, identifying opportunities for reductions and over time, reducing overall water consumption.*

#### WASTE & CIRCULAR ECONOMY

*Objective: To reduce the quantity of material described as waste; efficiently manage the waste that we and our occupants generate; and to optimise facilities and opportunities for reuse and recycling across our value chain.*

<sup>1</sup> and removals.

# INTRODUCTION

## REPORTING SCOPE

are material to our main activities.

There are two main aspects of our business activity: the development and then the subsequent operation of real estate assets. The project management of our design and construction activities is carried out in-house, at our various corporate offices. The physical build element is delivered by our framework contractors and their sub-contractors, which results in our most significant emissions; these upstream emissions are outside our direct operational control.

Our operational activities within completed buildings are managed by our asset management teams, who supervise the activities of our various managing agents. As we directly influence their management approach, we class our managing agents as an extension of ourselves, and report emissions in landlord-operated areas of our buildings as our own Category 1 and 2 emissions.

Our estate management team operates the wider Wembley Park Estate, which in addition to our assets, includes significant areas of public realm.

In addition, we report on emissions outside of our operational control, but which influence or are influenced by our operational activities. These emissions are recorded under GHG Inventory Categories 3 - 6, also referred to as our 'Scope 3' emissions.

### SIGNIFICANCE CRITERIA

We have adopted three tests to determine whether an emission source is considered significant:

- 1) Is the data required for identified external benchmarking or reporting purposes?
- 2) Does the data contribute more than 5% of total Scope 1 and Scope 2 emissions in the reporting year used for assessing significance?
- 3) Is data readily available, or can processes be put in place easily to collect data in a cost-effective manner?

Prior to our 2020 GHG Inventory, our 2015 report was our most recent and complete dataset. Data was collected for the majority of GHG Inventory Categories, and along with our base-year inventory (2013/14), was used to determine the likelihood of a category contributing to more than 5% of our Scope 1 and 2 total. Where a category was not previously reported, or where we have more recent data, this was used as the basis for the threshold assessment instead. Emissions are aggregated according to the area of the business to which they apply; different parts of the business have different individuals responsible for energy management, so this approach to aggregation allows us to easily compare performance over time by

owner. Our GHG sources and quantification approach are described in detail in the Methodology section at the end of this report.

The aggregation categories we use are:

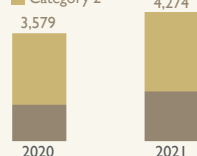
- Corporate: Our owned and leased office space across our multiple locations.
- Wembley Park Estate: Our Wembley Park estate assets and public realm, managed by our Estate Team.
- Quintain Living: Our Build to Rent residential assets, managed by FirstPort and Pod Management.

## 2021 GHG SUMMARY

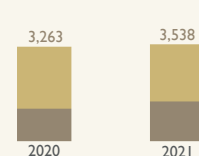
### Scopes 1 & 2

Absolute Emissions [tCO<sub>2</sub>e]

■ Category 1  
■ Category 2



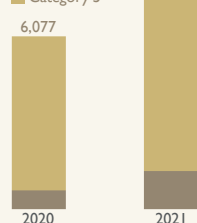
Like-for-Like Emissions [tCO<sub>2</sub>e]



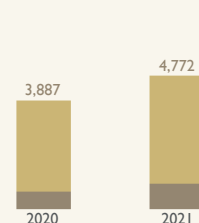
### Scope 3

Absolute Emissions [tCO<sub>2</sub>e]

■ Category 4<sup>3</sup>  
■ Category 5<sup>3</sup>



Like-for-Like Emissions [tCO<sub>2</sub>e]



### Embodied Carbon [tCO<sub>2</sub>e]

■ Category 4.1a [LCA Stages A1-A5]  
■ Category 5.1a [LCA Stages B1-B5]  
■ Category 5.3a [LCA Stages C1-C4]



### Scope 1 Emissions

1,649 tCO<sub>2</sub>e

[2020: 1,216 tCO<sub>2</sub>e]

### Scope 2 Emissions

2,625 tCO<sub>2</sub>e

[2020: 2,363 tCO<sub>2</sub>e]

### Scope 3 Emissions

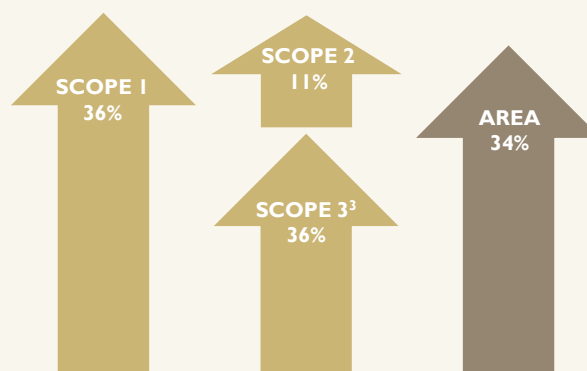
139,293 tCO<sub>2</sub>e

[2020: 102,588 tCO<sub>2</sub>e]

### GAV Area<sup>2</sup>

4.92 km<sup>2</sup>

[2020: 3.70 km<sup>2</sup>]



<sup>2</sup> Our Gross Asset Value (GAV) relates to our standing assets only. It excludes assets that we don't own that are within our operational control and are included in our emission totals but provides an indication of the growth of our business over the reporting year.

<sup>3</sup> Excluding Embodied Emissions (GHG Categories 4.3a, 5.1a and 5.3a) which are set out separately above. Embodied Emissions are recorded on a one-off basis at the point of building completion. They are by far our greatest emissions source, but artificially skew the comparison of our data between reporting years.

# 2021 GHG INVENTORY

## REPORTING SCOPE

### EMISSIONS OUT OF SCOPE

Not all emission sources are relevant or 'material' to our business and operations. Based on the significance criteria we define in our *GHG Policy & Data Management Procedures*, the emission categories below are excluded from our GHG Inventory.

#### CATEGORY 1 DIRECT EMISSIONS

##### 1.3 DIRECT PROCESS EMISSIONS AND REMOVALS FROM INDUSTRIAL PROCESSES

###### EMISSION SOURCES

Not relevant – there are not any industrial processes are undertaken by the organisation.

##### 1.4 DIRECT FUGITIVE EMISSIONS FROM THE RELEASE OF GHGS IN ANTHROPOGENIC SYSTEMS

###### EMISSION SOURCES

Refrigerant leakage in building and vehicle air-conditioning equipment.

###### SIGNIFICANCE

Refrigerant leakage was assessed in 2014/15 and found to contribute 0.38% of total Scope 1 and Scope 2 emissions. This data is not required for any other 3<sup>rd</sup>-party reporting at this time and is therefore considered to immaterial to the current GHG Inventory and reporting.

##### 1.5 DIRECT EMISSIONS AND REMOVALS FROM LAND USE, LAND USE CHANGE AND FORESTRY

###### EMISSION SOURCES

Not relevant – there is no land use, land use change or forestry are undertaken by the organisation.

#### CATEGORY 3 EMISSIONS FROM TRANSPORTATION

##### 3.1 UPSTREAM TRANSPORT & DISTRIBUTION OF GOODS

###### EMISSION SOURCES

Not relevant – any upstream transportation of goods is accounted for in GHG Category 4.3a.

##### 3.2 DOWNSTREAM TRANSPORT AND DISTRIBUTION OF GOODS

###### EMISSION SOURCES

Not relevant – there is no downstream transport or distribution of products.

### 3.3 EMPLOYEE COMMUTING

#### EMISSION SOURCES

Employees travelling to and from work.

#### SIGNIFICANCE

Not measured but unlikely to meet our significance threshold due to the location of our business activities and the modes of transport generally adopted (i.e. public transport, cycling and on foot), as well as the difficulties in reliably collecting this data.

### 3.4 CLIENT & VISITOR TRANSPORT

#### EMISSION SOURCES

Visitors to assets operated by the organisation (e.g. London Designer Outlet). There may also be a small number of visitors by clients and partners.

#### SIGNIFICANCE

Not measured but unlikely to meet our significance threshold due to the location of our business activities and the modes of transport generally adopted (i.e. public transport, cycling and on foot), as well as the difficulties in reliably collecting this data.

### 3.5 BUSINESS TRAVEL

#### EMISSION SOURCES

Taxis, flights and public transport associated with business activities and any overnight hotel accommodation associated with business trips.

#### SIGNIFICANCE

Flights and taxi use data were collected in 2014/15 accounted for less than 0.34% of total Scope 1 and 2 emissions. Journeys made by private vehicle that are reimbursed by the organisation are within the Scope of SECR reporting, however due to the central location of offices and developments, they are limited in quantity. Currently, fuel is reimbursed based on distance travelled and government reimbursement rates. Insufficient data is available to allow an accurate calculation of resulting emissions, but as these will be less than 1%, of total emissions, this GHG Inventory Category is outside the scope of our GHG Inventory and reporting.

### CATEGORY 4 INDIRECT GHG EMISSIONS FROM THE USE OF PRODUCTS & SERVICES

#### 4.2 EMISSIONS FROM CAPITAL GOODS

##### EMISSION SOURCES

There are no significant sources of emissions related to capital goods.

#### 4.4 EMISSIONS FROM THE USE OF ASSETS LEASED BY THE ORGANISATION

##### EMISSION SOURCES

Not relevant – emissions from the use of leased assets in operational control are accounted for in Categories 1 and 2 where applicable..

### 4.5 EMISSIONS FROM THE USE OF SERVICES NOT DESCRIBED ABOVE

#### EMISSION SOURCES

Cleaning, maintenance, mail delivery, banking, consultancy.

#### SIGNIFICANCE

Whilst without measurement, emission totals from services cannot be properly understood, the scale of these emissions is likely to be low as it will be a small proportion of the emissions of organisations providing services to the organisation. Due to the introduction of SECR requirements, there may be an increase in reporting by other organisations that could be used to estimate our portion of these emissions (based on spend for example). However, at this point in time, there is insufficient quality data to this effect. This GHG Inventory Category is therefore outside the scope of our GHG Inventory and reporting.

### CATEGORY 5 INDIRECT GHG EMISSIONS FROM THE USE OF PRODUCTS

#### 5.1 EMISSIONS FROM THE USE STAGE OF PRODUCTS

##### 5.1b In-Use Energy, Water and Waste (Sold Assets)

##### EMISSION SOURCES

Whilst Quintain has an influence on the energy and water consumed in newly constructed assets through design decisions made, these emissions will not remain static over the life of the building (the 'Sold Product') due to changes in building fabric and equipment replaced during the life of the building and changes to emission factors over time due to the decarbonisation of energy supplies. It would misrepresent emissions in this case to report them over a defined lifespan when for retained assets, these emissions are reported under Category 5.2 Emissions from downstream Leased Assets on an annual basis. It would be within the organisational boundary of the building owner to report these emissions under their Category 5.2 emissions, so these are excluded to avoid double counting.

As a developer, beyond the provision of waste and recycling facilities, Quintain has no influence on waste generated in assets sold.

#### 5.4 EMISSIONS FROM INVESTMENTS

##### EMISSION SOURCES

There are no sources of emissions from investments.

### CATEGORY 6: EMISSIONS FROM OTHER SOURCES

No other emissions sources have been identified.

# 2021 GHG INVENTORY

## CATEGORY 1 DIRECT GHG EMISSIONS & REMOVALS<sup>4</sup>

### 1.1 DIRECT EMISSIONS FROM STATIONARY COMBUSTION

#### EMISSION SOURCES

Category 1.1 emission sources include the stationary combustion of gas in boilers that we own and operate. Where we generate heat for third party users (for example in our W05 asset that generates heat for London Designer Outlet, The Hilton, Wembley and Raffles House Student Accommodation), this is recorded as a Category 1 emission source as it is within our operational control. Note that with the exception of London Designer Outlet, the end users of the heat generated are not Quintain tenants and are otherwise outside the scope of our reporting.

#### SIGNIFICANCE

Stationary combustion accounts for 38% of total Category 1 and Category 2 emissions in 2021. Components of this data are also used to provide asset consumption and GHG emissions relevant to the GRESB assessment. These emissions source is therefore considered to be material and is included in our GHG Inventory and reporting.

#### QUANTIFICATION MODEL

The volume of gas consumption is measured using meter read data and converted into kWh using the following formula:  

$$(\text{Volume (m}^3\text{)} \times \text{Calorific Value (MJ/m}^3\text{)}) / (3.6 \text{ MJ/kWh})$$
 The UK is subdivided into thirteen charging areas, and daily CV averages are provided by National Grid to gas shippers and suppliers in the area based on this data. As a gas consumer, we are billed on the basis of the daily averages for the area in which our gas supplies are located. Where a specific calorific value is not provided by the

supplier, the daily average figure for the year for North Thames Local Distribution Zone (LDZ) obtained from National Grid is applied to annual consumption.

The total kWh is then multiplied by the emission factor for natural gas obtained via *Government Conversion Factors for Company Reporting of Greenhouse Gas Emissions*. In 2021, there was a 0.39% reduction in this emission factor compared with 2020.

### INSIGHTS CORPORATE

Our Corporate gas consumption dropped in 2021, partly as a result of the January 2021 COVID-19 lockdown where during peak heating season, space heating demand was reduced, and partly due to the closure of our project office in November 2021 and its movement to a different asset in our portfolio (without a gas supply).

We now no longer have any corporate gas supplies in operation and in 2022 will report zero consumption in this category. Heat will be generated by other means and will be reported under our Category 2 emissions.

### WEMBLEY PARK ESTATE

At the Wembley Park Estate, we encountered a number of faults across the W05 boiler network in early 2021. A delay in receiving parts for the repairs required led to the frequent draining down of our hot water storage and we struggled to maintain hot water supplies. This had a significant impact on annual boiler efficiency, reducing as a result of this from 86% to 61%. We expect the efficiency to improve in 2022 as a result.

### 1.2 DIRECT EMISSIONS FROM MOBILE COMBUSTION

#### EMISSION SOURCES

This includes mobile combustion in vehicles owned or leased by the organisation. The only source of such emissions within Quintain is the fuel consumed in estate vehicles used for maintenance and security across Wembley Park. Over 99% of fuel consumed in 2021 was petrol, with a small quantity of diesel.

#### SIGNIFICANCE

Mobile combustion emissions were assessed in 2015 and accounted for 0.04% of total Scope 1 and Scope 2 emissions, which is below our threshold for significance; however, this data is included in SECR reporting, it is therefore considered material for voluntary compliance with these requirements and is included in our GHG Inventory and reporting.

#### QUANTIFICATION MODEL

Vehicle fuel cards are used for the purchase of all fuel consumed in the vehicles, which are provided with details of mileage, type of fuel and quantity of fuel purchased. Consumption in litres is then multiplied by the emission factor for petrol/ diesel (average biofuel blend) via *Government Conversion Factors for Company Reporting of Greenhouse Gas Emissions*. In 2021, there was a 0.26% increase in emissions associated with petrol.

### A. Category 1 Absolute GHG Emissions by Entity

|                                                       | 2021                         |                                           |                                         |                       | 2020<br>(Restated)           |                                           |                                      |                            |
|-------------------------------------------------------|------------------------------|-------------------------------------------|-----------------------------------------|-----------------------|------------------------------|-------------------------------------------|--------------------------------------|----------------------------|
|                                                       | Consumption<br>[unit stated] | GHG<br>Emissions<br>[kgCO <sub>2</sub> e] | Annualised<br>Area<br>[m <sup>2</sup> ] | Data<br>Coverage<br>% | Consumption<br>[unit stated] | GHG<br>Emissions<br>[kgCO <sub>2</sub> e] | Annualised<br>Area<br>m <sup>2</sup> | Data<br>Coverage<br>% Area |
| CATEGORY 1                                            | 8,997,384                    | 1,649,194                                 | N/A                                     | 100%                  | 6,598,734                    | 1,215,792                                 | N/A                                  | 100%                       |
| 1.1 Direct Emissions from Stationary Combustion [kWh] | 8,970,977                    | 1,643,124                                 | 58,467                                  | 100%                  | 6,544,007                    | 1,203,247                                 | 58,537                               | 100%                       |
| ■ Corporate                                           | 27,984                       | 5,126                                     | 506                                     | 100%                  | 42,266                       | 7,772                                     | 576                                  | 100%                       |
| ■ Wembley Park Estate                                 | 8,942,993                    | 1,637,999                                 | 57,961                                  | 100%                  | 6,501,740                    | 1,195,475                                 | 57,961                               | 100%                       |
| 1.2 Direct Emissions from Mobile Combustion [kWh]     | 26,407                       | 6,070                                     | N/A                                     | 100%                  | 54,728                       | 12,546                                    | N/A                                  | 100%                       |
| ■ Wembley Park Estate                                 | 26,407                       | 6,070                                     | N/A                                     | 100%                  | 54,728                       | 12,546                                    | N/A                                  | 100%                       |

### INSIGHTS WEMBLEY PARK ESTATE

In Summer 2021, our vehicle leasing contract came to an end and we are currently negotiating a new contract with an alternative provider with whom we are reviewing options for cleaner vehicles. This has meant that we have been without estate vehicles since July 2021, and as a result, our fuel consumption has reduced by 52%.

For day-to-day estate security, we have benefitted from the presence of a dedicated neighbourhood policing team we invested in and put place at the beginning of 2021 under a new Special Police Services Agreement with the Mayor's Office for Policing and Crime.

During certain large events, we have leased vehicles for use on a short-term basis, but we do not have fuel consumption data for these vehicles. As these are one-off events, we do not consider any fuel consumed to be material to our inventory.

<sup>4</sup> Previously referred to as 'Scope 1' emissions, this category relates to the direct burning of fuels and release of gases within our operational control.

# 2021 GHG INVENTORY

## CATEGORY 2 INDIRECT GHG EMISSIONS FROM IMPORTED ENERGY<sup>5</sup>

### 2.1 INDIRECT EMISSIONS FROM IMPORTED ELECTRICITY

#### EMISSION SOURCES

Our Category 2.1 emission sources include landlord electricity supplies in operational assets and estates supplies (including vacant units), as well as landlord-supplied electricity in offices we lease.

#### SIGNIFICANCE

These emissions account for 59% of total Scope 1 and Scope 2 emissions in 2021 and are therefore considered to be material.

#### QUANTIFICATION MODEL

The quantity of electricity consumed is measured in kWh and is multiplied by the emission factor for grid electricity obtained via *Government Conversion Factors for Company Reporting of Greenhouse Gas Emissions*. In 2021, there was a further 8.93% reduction in the grid electricity emission factor compared with 2020.

### INSIGHTS

#### CORPORATE

Our Corporate gas consumption dropped in 2021, partly as a result of the January 2021 COVID-19 lockdown where during peak heating season, space heating demand was reduced, and partly due to the closure of our project office in November 2021 and its movement to a different asset in our portfolio.

### WEMBLEY PARK ESTATE

Across the Wembley Park Estate, electricity consumption varies from year-to-year depending on the level of activation and events hosted. In 2020, the activation of our public realm was greatly subdued due to COVID-19 restrictions. In 2021, activation, particularly in the summer, has been at more typical levels, including the use of the fountain in Arena Square. As the public realm expands alongside new development, additional supplies are also added to serve these new areas, and in 2021, this accounted for 8% of consumption, mostly associated with the new Green Car Park, Olympic Steps and Union Park South.

### QUINTAIN LIVING & WEMBLEY PARK REISIDENTIAL

In 2021 our Quintain Living portfolio grew by 46% with the completion of The Madison, the Collyer Building in Canada Gardens and The Robinson. 21% of electricity consumed in 2021 is as a result of these new building areas. Activation of landlord managed spaces such as gyms, which were closed for longer periods in 2020 due to COVID-19 restrictions have also resulted in increases.

### WEMBLEY PARK RETAIL

As anticipated, we saw an increase in landlord consumption across our retail assets as a result of increased operating hours compared with 2020, which had longer periods of closure due to COVID-19 restrictions. Our retail administration spaces also saw increased consumption compared with 2020 as more people returned to our offices.

### WEMBLEY PARK COMMERCIAL

Our most significant electricity and heat reductions have been delivered across our office building The Hive. The Hive was completed at the end of 2019, with the first tenant moving in to the building in the summer of 2021, but due to COVID-19 restrictions and working practices, the building remained largely vacant. Energy consumption in the building was therefore unexpectedly high, and our facilities management teams have been working hard to identify reduction opportunities. Additional metering was installed, and the asset was re-commissioned to reflect actual occupancy levels, bringing overall energy consumption more closely in line with our expectations and resulting in a 48% reduction in electricity consumption and a 55% reduction in heat consumption. In turn these equate to a 52% decrease in Category 2.1 emissions and a 46% decrease in Category 2.2 emissions for this asset.

### 2.2 INDIRECT EMISSIONS FROM IMPORTED ENERGY

#### EMISSION SOURCES

The only non-electricity energy supply within our operational control relates to heat consumption in our commercial office asset, The Hive. Whilst we do not have full control over how heat is consumed, we control its distribution and balancing. All other heat generation is accounted for under Category 1.1 and all other heat consumed is accounted for in Category 5.2.

#### SIGNIFICANCE

These emissions account for 8% of total Scope 1 and Scope 2 emissions in 2021 and are therefore considered to be material.

#### QUANTIFICATION MODEL

The quantity of heat delivered is metered and measured in kWh/MWh and is multiplied by the emission factor calculated for the relevant heat provider. Heat is supplied to The Hive by Metropolitan, the operator of the Eastern Lands Energy Centre. Data on gas and electricity consumed, as well as heat and electricity generated, has been provided by Metropolitan, allowing the calculation of a carbon factor for heat using the emission factors for grid electricity and natural gas obtained via *Government Conversion Factors for Company Reporting of Greenhouse Gas Emissions*. In 2021, the emissions associated with this source increased by 19.12%.

### B. Category 2 Absolute GHG Emissions by Entity

|                                                        | 2021                         |                                           |                                         |                       | 2020                         |                                           |                                      |                            |
|--------------------------------------------------------|------------------------------|-------------------------------------------|-----------------------------------------|-----------------------|------------------------------|-------------------------------------------|--------------------------------------|----------------------------|
|                                                        | Consumption<br>[unit stated] | GHG<br>Emissions<br>[kgCO <sub>2</sub> e] | Annualised<br>Area<br>[m <sup>2</sup> ] | Data<br>Coverage<br>% | Consumption<br>[unit stated] | GHG<br>Emissions<br>[kgCO <sub>2</sub> e] | Annualised<br>Area<br>m <sup>2</sup> | Data<br>Coverage<br>% Area |
| CATEGORY 2                                             | 12,319,196                   | 2,624,733                                 | -                                       | 99.6%                 | 10,251,791                   | 2,363,393                                 | -                                    | 99.1%                      |
| 2.1 Indirect Emissions from Imported Electricity [kWh] | 11,960,974                   | 2,539,674                                 | 269,371                                 | 99.6%                 | 9,461,728                    | 2,205,907                                 | 217,022                              | 99.1%                      |
| Corporate                                              | 379,999                      | 80,685                                    | 3,114                                   | 75.6%                 | 381,545                      | 88,953                                    | 2,694                                | 71.8%                      |
| Wembley Park Estate                                    | 3,623,808                    | 769,443                                   | 143,916                                 | 100%                  | 2,934,836                    | 684,228                                   | 132,575                              | 100%                       |
| Quintain Living                                        | 4,986,626                    | 1,058,810                                 | 83,529                                  | 100%                  | 3,183,708                    | 742,250                                   | 46,158                               | 100%                       |
| Wembley Park Residential                               | 977,447                      | 207,541                                   | 12,810                                  | 100%                  | 745,150                      | 173,724                                   | 12,810                               | 100%                       |
| Wembley Park Retail                                    | 1,603,975                    | 340,572                                   | 7,724                                   | 94.4%                 | 1,472,626                    | 343,328                                   | 6,971                                | 81.7%                      |
| Wembley Park Commercial                                | 389,119                      | 82,622                                    | 15,909                                  | 100%                  | 743,863                      | 173,424                                   | 15,814                               | 100%                       |
| Wembley Park Leisure                                   | 0                            | 0                                         | 2,369                                   | 100%                  | N/A                          | N/A                                       | N/A                                  | N/A                        |
| 2.2 Indirect Emissions from Imported Heat [kWh]        | 358,222                      | 85,059                                    | 15,814                                  | 100%                  | 790,062                      | 157,485                                   | 15,814                               | 100%                       |
| Wembley Park Commercial                                | 358,222                      | 85,059                                    | 15,814                                  | 100%                  | 790,062                      | 157,485                                   | 15,814                               | 100%                       |

<sup>5</sup> Previously referred to as 'Scope 2' emissions, this category relates to electricity and heat generated by third parties consumed within our operational control.

# 2021 GHG INVENTORY

## CATEGORY 4 INDIRECT GHG EMISSIONS FROM THE USE OF PRODUCTS & SERVICES

### 4.1 EMISSIONS FROM PURCHASED GOODS<sup>6</sup>

#### 4.1b Fuel and Energy Related Activities (FERA)

##### EMISSION SOURCES

Emissions from goods supplied to the organisation include those associated with the production of purchased energy.

##### SIGNIFICANCE

These emissions account for 31% of total Scope 1 and Scope 2 emissions in 2021 and are therefore considered to be material.

##### QUANTIFICATION MODEL

Category 1 and 2 activity data are multiplied by the appropriate emission factors for upstream fuel and electricity emissions obtained from *Government Conversion Factors for Company Reporting of Greenhouse Gas Emissions*. Increases of 31% for gas supply, 44% for electricity supply and 2% for petrol supply in upstream emissions in 2021 also result in an overall increase of 50% associated with the supply of heat via the Eastern Lands Heat Network.

### 4.3 EMISSIONS FROM THE DISPOSAL OF SOLID AND LIQUID WASTE

#### 4.3a Water

##### EMISSION SOURCES

Category 4.3a includes water consumed in our offices and other assets under our operational control.

##### SIGNIFICANCE

Water supply and treatment emissions were calculated in 2015 and accounted for 0.34% of total Scope 1 and Scope 2 emissions at that time; in 2021 this has reduced further to 0.14%. Whilst below the threshold for significance based on scale, this data is required for GAV assets by the GRESB survey, and also represents wider environmental interests around resource consumption.

##### QUANTIFICATION MODEL

The volume of water consumed is metered and meter data is collected for landlord supplies within operational control. The quantity of water consumed is multiplied by the emission factors for water supply and water treatment obtained from *Government Conversion Factors for Company Reporting of Greenhouse Gas Emissions*. In 2021, there was a combined 60% reduction in these emission factors.

#### 4.3b Waste

##### EMISSION SOURCES

Category 4.3b includes waste generated in our offices and other assets under our operational control<sup>7</sup>.

##### SIGNIFICANCE

Similar to Category 4.3a emissions, waste treatment emissions in 2021 account for 0.14% of Scope 1 and Scope 2 emissions. Whilst also below the threshold for significance based on scale, this data is

#### C. Category 4 Absolute GHG Emissions by Entity

|                                                                       | 2021                         |                                           |                                         |                       | 2020<br>(Restated)           |                                           |                                      |                            |
|-----------------------------------------------------------------------|------------------------------|-------------------------------------------|-----------------------------------------|-----------------------|------------------------------|-------------------------------------------|--------------------------------------|----------------------------|
|                                                                       | Consumption<br>[unit stated] | GHG<br>Emissions<br>[kgCO <sub>2</sub> e] | Annualised<br>Area<br>[m <sup>2</sup> ] | Data<br>Coverage<br>% | Consumption<br>[unit stated] | GHG<br>Emissions<br>[kgCO <sub>2</sub> e] | Annualised<br>Area<br>m <sup>2</sup> | Data<br>Coverage<br>% Area |
| CATEGORY 4                                                            | -                            | 94,410,188                                | -                                       | 96.9%                 | -                            | 69,394,548                                | -                                    | 90.7%                      |
| 4.1 Emissions from Purchased Goods & Services                         | -                            | 94,397,589                                | -                                       | 96.4%                 | -                            | 69,365,870                                | -                                    | 87.4%                      |
| 4.1a Embodied Emissions (Life Cycle Stages A1 – A5) [m <sup>2</sup> ] | 128,223                      | 93,157,122                                | 128,223                                 | 89.3%                 | 127,782                      | 68,667,182                                | 127,782                              | 66.0%                      |
| Wembley Park Estate                                                   | 10,566                       | Not Available                             | 10,566                                  | 0%                    | 40,647                       | Not Available                             | 40,647                               | 0%                         |
| Quintain Living                                                       | 84,292                       | 68,616,815                                | 84,292                                  | 100%                  | 84,354                       | 68,667,182                                | 84,354                               | 100%                       |
| Wembley Park Residential                                              | 30,147                       | 24,540,307                                | 30,147                                  | 100%                  | N/A                          | N/A                                       | N/A                                  | N/A                        |
| Wembley Park Retail                                                   | 267                          | Not Available                             | 267                                     | 0%                    | 2,781                        | N/A                                       | 2,781                                | 0%                         |
| Wembley Park Commercial                                               | 289                          | Not Available                             | 289                                     | 0%                    | N/A                          | N/A                                       | N/A                                  | N/A                        |
| Wembley Park Leisure                                                  | 2,661                        | Not Available                             | 2,661                                   | 0%                    | N/A                          | N/A                                       | N/A                                  | N/A                        |
| 4.1b Fuel and Energy Related Emissions (FERA) [kWh]                   | 21,316,579                   | 1,240,467                                 | 284,958                                 | 99.7%                 | 16,850,525                   | 698,688                                   | 232,794                              | 99.1%                      |
| Corporate                                                             | 407,983                      | 30,886                                    | 3,114                                   | 75.6%                 | 423,811                      | 21,992                                    | 2,694                                | 71.8%                      |
| Wembley Park Estate                                                   | 12,593,208                   | 568,230                                   | 143,916                                 | 100%                  | 9,491,304                    | 320,276                                   | 132,575                              | 100%                       |
| Quintain Living                                                       | 4,986,626                    | 393,794                                   | 83,529                                  | 100%                  | 3,183,708                    | 175,072                                   | 46,158                               | 100%                       |
| Wembley Park Residential                                              | 977,447                      | 77,189                                    | 12,810                                  | 100%                  | 745,150                      | 40,976                                    | 12,810                               | 100%                       |
| Wembley Park Retail                                                   | 1,603,975                    | 126,666                                   | 7,591                                   | 96%                   | 1,472,626                    | 80,378                                    | 6,929                                | 82.2%                      |
| Wembley Park Commercial                                               | 747,341                      | 43,703                                    | 31,723                                  | 100%                  | 1,533,925                    | 59,995                                    | 31,628                               | 100%                       |
| Wembley Park Leisure                                                  | 0                            | 0                                         | 2,369                                   | 100%                  | N/A                          | N/A                                       | N/A                                  | N/A                        |
| 4.3 Emissions from the Disposal of Solid and Liquid Waste             | -                            | 12,599                                    | -                                       | 97.9%                 | -                            | 28,679                                    | -                                    | 96.6%                      |
| 4.3a Water                                                            | 14,824                       | 6,241                                     | 133,862                                 | 96.8%                 | 22,054                       | 23,201                                    | 115,308                              | 94.7%                      |
| Corporate                                                             | 340                          | 143                                       | 2,324                                   | 45.5%                 | 906                          | 953                                       | 1,838                                | 64.8%                      |
| Wembley Park Estate                                                   | 1,863                        | 784                                       | 72,201                                  | 99.6%                 | 3,166                        | 3,330                                     | 62,095                               | 99.5%                      |
| Quintain Living                                                       | 3,427                        | 1,443                                     | 21,327                                  | 98.7%                 | 4,441                        | 4,672                                     | 15,085                               | 100%                       |
| Wembley Park Retail                                                   | 5,254                        | 2,212                                     | 7,292                                   | 74.5%                 | 6,547                        | 6,888                                     | 7,940                                | 35%                        |
| Wembley Park Commercial                                               | 584                          | 246                                       | 15,814                                  | 100%                  | 134                          | 141                                       | 15,814                               | 100%                       |
| Wembley Park Leisure                                                  | 0                            | 0                                         | 2,369                                   | 100%                  | N/A                          | N/A                                       | N/A                                  | N/A                        |
| 4.3b Waste                                                            | 306,477                      | 6,358                                     | 99,390                                  | 99.3%                 | 261,315                      | 5,478                                     | 87,699                               | 99.2%                      |
| Corporate                                                             | 17,628                       | 334                                       | 3,282                                   | 77.3%                 | 12,519                       | 255                                       | 2,694                                | 72.4%                      |
| Wembley Park Estate                                                   | 277,203                      | 5,824                                     | 94,819                                  | 100%                  | 243,866                      | 5,119                                     | 83,503                               | 100%                       |
| Wembley Park Retail                                                   | 11,646                       | 200                                       | 1,289                                   | 100%                  | 4,930                        | 103                                       | 1,502                                | 100%                       |

<sup>6</sup> Associated with the fabrication of products. Also includes Category 4.1a Embodied Emissions (Life-cycle Stages A1 – A5), separately outlined on Page 07.

<sup>7</sup> Previously this category included all waste collected via our Envac waste system; this was because we are unable to measure the quantity of waste generated by individual end users; however, this approach result in disproportionately high emissions for something that is outside our control. In 2021, we have apportioned waste generated based on the area of individual assets connected to the system and a significant proportion of these emissions are now recorded under Category 5.2d.

# 2021 GHG INVENTORY

## CATEGORY 4 & 5 EMBODIED EMISSIONS

### EMBODIED EMISSIONS

It is a requirement for all new construction projects to include the assessment of embodied emissions at each project stage, with the intention of meeting our embodied emission targets and for identifying opportunities for embodied emission reductions as each project progresses.

Emissions for the whole life-cycle are then recorded in the relevant Category of the GHG Inventory at the point of construction completion.

The projects completed in 2021, E01/02 Madison and E05 The Robinson, pre-dated this requirement and although an assessment of E05 did take place, material errors were found in those calculations which could not be reconciled sufficiently for the purpose of reporting. As such, the assessment of embodied emissions undertaken in relation to the construction of NW07/08 by Cundall in 2019 continues to be our proxy for residential embodied emissions where no study has been carried out for a specific building completed in the reporting year.

Embodied emissions occur at three key life cycle stages and are recorded under the following GHG Inventory Categories:

- 4.1 EMISSIONS FROM PURCHASED GOODS
  - 4.1a Embodied Emissions (Life-cycle Stages A1-A5)
- 5.1 EMISSIONS FROM THE USE STAGE OF PRODUCTS
  - 5.1a Embodied Emissions (Life-cycle Stages B1-B5)
- 5.3 EMISSIONS FROM END-OF-LIFE STAGE FOR THE PRODUCT
  - 5.3a Embodied Emissions (Life Cycle Stages C1-C4)

### EMISSION SOURCES & SIGNIFICANCE

#### Life-cycle Stages A1-A5 Product & Construction Stages

These life-cycle stages include emissions associated with the extraction of materials, transport to manufacturing site, the process of manufacturing into construction products, the transport of those products to the construction site and the installation and assembly of those products that comprise the finished building.

Total emissions for A1-A5 are significant, resulting in 814 kgCO<sub>2</sub>e/m<sup>2</sup>

of residential development. Based on 2018/19 completions, in 2018/19 this accounted for 82,844 tCO<sub>2</sub>e, or 2,358% of our total Scope 1 and Scope 2 emissions, making them our most significant emission source. Note that these emissions have occurred in the recent past, but not necessarily in the reporting year.

#### Life-cycle Stages B1-B5 Use Stage

These life-cycle stages include the use, maintenance, repair, replacement and refurbishment emissions estimated over a 60-year building life-cycle.

The Cundall report for NW07/08 provides an estimate of these emissions over that 60-year period, resulting in 248 kgCO<sub>2</sub>e/m<sup>2</sup> GIA of residential development, accounting for 664% of Scope 1 and Scope 2 emissions in 2021, making them our second most significant emission source.

Note that these emissions are recorded in our 2021 GHG Inventory but have not yet occurred.

#### Life-cycle Stages C1 – C4 End of Life Stage

These life-cycle stages relate to deconstruction and demolition, transport, waste processing and disposal of the building at the end of an assumed life of 60 years.

As design decisions made today affect the deconstruction of our buildings in the future, these emissions are included in our GHG Inventory at the point of completion of a building, however, these emissions have not yet occurred. No allowance has been made for emission sinks as a result of material reuse and recycling, so the figure currently calculated is likely to be a significant over-estimate of emissions. The total emissions for C1 - C3 emissions result in 82 kgCO<sub>2</sub>e/m<sup>2</sup> GIA of residential development. In 2021, these emissions account for 220% of our Scope 1 and Scope 2 emissions.

We do not account for emissions associated with the deconstruction of buildings demolished to make way for new development as these are not our 'product'.

### QUANTIFICATION MODEL

The total emissions calculated for NW07/087 per m<sup>2</sup> GIA for each life-cycle phase is multiplied by the total GIA of residential assets where construction is completed during the reporting year. This data is only applied to the residential asset typography, and no data is currently available for other asset types.

Emissions are recorded under the relevant GHG Inventory Category as identified opposite.



# 2021 GHG INVENTORY

## CATEGORY 5 INDIRECT GHG EMISSIONS FROM THE USE OF PRODUCTS

### 5.2 EMISSIONS FROM DOWNSTREAM LEASED ASSETS

#### 5.2a Gas

##### EMISSION SOURCES

There are a small number of active gas supplies across Wembley Park Retail serving tenant areas; capped off supplies for future connection if required by the tenant are generally provided to new retail units with the potential to become Food & Beverage (F&B) outlets.

Quintain is typically responsible for a supply up until the point of formal handover to a new tenant and between tenancies, however gas consumption during these periods is generally zero due to the lack of gas consuming equipment in-use.

##### SIGNIFICANCE

In 2021, tenant gas emissions accounted for 14% of our Scope 1 and 2 emissions; they are also included in the performance aspect of the GRESB questionnaire so are therefore considered material.

##### QUANTIFICATION MODEL

Where a meter is installed, it is generally read on a monthly basis and data is provided by Realm. In 2020 and 2021, there have been some access and resourcing difficulties as a result of COVID-19, so coverage for this data source is lower than for other data sources. Where no data regarding the calorific value of the gas supplied is available (as Quintain is not generally responsible for tenant billing) an average calorific value is applied in accordance with the procedure identified under Category 1.1 emissions.

The calculated consumption in kWh is multiplied by the 'Natural Gas' emission factors previously outlined in Categories 1.1 and 4.1b.

#### 5.2b Electricity

##### EMISSION SOURCES

All of our tenants and residents consume electricity. During vacant periods, this data is reported under Category 2.1 and 4.1b. The majority of assets across the Wembley Park estate are leased to either Quintain Living or commercial tenants.

##### SIGNIFICANCE

Electricity consumption in downstream leased assets accounts for 74% of our Scope 1 and Scope 2 emissions in 2021; they are also included in the performance aspect of the GRESB questionnaire so are therefore considered material.

### QUANTIFICATION MODEL

With the exception of Quintain Living apartments in the North West Lands, individual meters are for the most part read on a monthly basis, access permitting, by our managing agents.

Across the North West Lands, electricity is supplied to Quintain Living apartments via individual. Meters. Whilst these meters are smart, we are not currently obtaining reliable billing from the supplier, and because of the quantity of meters and their locations, it is not currently feasible to read those meters; for this reason, in 2021, our overall data coverage has reduced.

Electricity consumption data is multiplied by the relevant emission factors previously outlined in Categories 1.1 and 4.1b.

#### 5.2c Heat

##### EMISSION SOURCES

Whilst connections to our heat networks are available to all tenants, currently only Quintain Living residents are connected to heat supplies at Wembley Park. Heat is provided across the estate via energy centres located in the North West Lands and Eastern Lands, operated by EOn and Metropolitan respectively.

##### SIGNIFICANCE

In 2021, tenant heat emissions accounted for 56% of our Scope 1 and 2 emissions; they are also included in the performance aspect of the GRESB questionnaire so are therefore considered material.

### QUANTIFICATION MODEL

Heat is supplied to Quintain Living apartments in the North West Lands via individually metered heat interface units. Whilst these meters are smart, we are not currently obtaining reliable billing from the supplier, and because of the quantity of meters and their locations, it is not currently feasible to read those meters; for this reason, in 2021, our overall data coverage has reduced.

Data is provided to the estate team relating to the gas input and heat generation of the system, allowing emissions and losses to be calculated using the emission factors for grid electricity and natural gas previously outlined in Categories 1.1 and 4.1b.

#### 5.2d Water

##### EMISSION SOURCES

Depending on metering arrangements, water is provided either to groups of occupiers in bulk, or to individual occupiers. Our newer Quintain Living assets are generally supplied with a single

bulk supply for landlord and resident areas. Sub-metering is now provided to individual apartments, which will in the future allow this data to be split out, but we are not yet in a position to mix the types of data we have, and the whole building water supply is recorded under Category 5.2d for these assets at present.

##### SIGNIFICANCE

In 2021, emissions from the supply and treatment of water account for 1% of Scope 1 and 2 emissions, but as an important component of the GRESB assessment for individual asset performance, and an indicator of our performance against our Resource Efficiency objectives, they are still considered material.

### QUANTIFICATION MODEL

Water consumption data in m<sup>3</sup> is multiplied by the relevant emission factor outlined in Category 4.3a.

#### 5.2e Waste

##### EMISSION SOURCES

Waste is generated across all Wembley Park assets, collected either via our vacuum waste system Envac, or by individual arrangements with a commercial waste collector.

##### SIGNIFICANCE

In 2021, emissions from the treatment of waste account for less than 1% of Scope 1 and 2 emissions, but as an important component of the GRESB assessment for individual asset performance, and an indicator of our performance against our Resource Efficiency objectives, they are still considered material.

### QUANTIFICATION MODEL

It is not possible to determine the origin of waste generated via Envac, and only a total waste generation figure for the whole estate is provided; in 2020, this was recorded under 'Wembley Park Estate' in Category 4.3b. However, as this isn't waste generated by the estate, we have adjusted our approach in 2021, and is now apportioned according to floor area. Different types of asset generate waste at different rates, so this is not an accurate allocation, but the total waste remains the same. Veolia provide a breakdown of waste by end route, based on weighed waste at the collection facility. The total waste generated by waste route is multiplied by the emission factors for waste removal previously described in Category 4.3b.

# 2021 GHG INVENTORY

## CATEGORY 5 INDIRECT GHG EMISSIONS FROM THE USE OF PRODUCTS

### D. Category 5 Absolute GHG Emissions by Entity

|                                                                       | 2021                         |                                           |                                      |                            | 2020                         |                                           |                                      |                            |
|-----------------------------------------------------------------------|------------------------------|-------------------------------------------|--------------------------------------|----------------------------|------------------------------|-------------------------------------------|--------------------------------------|----------------------------|
|                                                                       | Consumption<br>[unit stated] | GHG<br>Emissions<br>[kgCO <sub>2</sub> e] | Annualised<br>Area<br>m <sup>2</sup> | Data<br>Coverage<br>% Area | Consumption<br>[unit stated] | GHG<br>Emissions<br>[kgCO <sub>2</sub> e] | Annualised<br>Area<br>m <sup>2</sup> | Data<br>Coverage<br>% Area |
| CATEGORY 5                                                            | -                            | 44,883,210                                | -                                    | 89.0%                      | -                            | 33,193,353                                | -                                    | 83.1%                      |
| 5.1 Emissions from the Use Stage of Products                          | 128,223                      | 28,353,420                                | 128,223                              | 89.3%                      | 127,782                      | 20,899,630                                | 127,782                              | 66%                        |
| 5.1a Embodied Emissions (Life-Cycle Stages B1 – B5) [m <sup>2</sup> ] | 128,223                      | 28,353,420                                | 128,223                              | 89.3%                      | 127,782                      | 20,899,630                                | 127,782                              | 66%                        |
| Wembley Park Estate                                                   | 10,566                       | 0                                         | 10,566                               | 0%                         | 40,647                       | 0                                         | 40,647                               | 0%                         |
| Quintain Living                                                       | 84,292                       | 20,884,301                                | 84,292                               | 100%                       | 84,354                       | 20,899,630                                | 84,354                               | 100%                       |
| Wembley Park Residential                                              | 30,147                       | 7,469,119                                 | 30,147                               | 100%                       | N/A                          | N/A                                       | N/A                                  | N/A                        |
| Wembley Park Retail                                                   | 267                          | 0                                         | 267                                  | 0%                         | 2,781                        | 0                                         | 2,781                                | 0%                         |
| Wembley Park Commercial                                               | 289                          | 0                                         | 289                                  | 0%                         | N/A                          | N/A                                       | N/A                                  | N/A                        |
| Wembley Park Leisure                                                  | 2,661                        | 0                                         | 2,661                                | 0%                         | N/A                          | N/A                                       | N/A                                  | N/A                        |
| 5.2 Emissions from Downstream Leased Assets                           | -                            | 7,109,147                                 | -                                    | 88.9%                      | -                            | 5,349,658                                 | -                                    | 89%                        |
| 5.2a Tenant Gas [kWh]                                                 | 2,701,522                    | 579,503                                   | 11,795                               | 58.6%                      | 2,352,989                    | 488,904                                   | 11,690                               | 58.2%                      |
| Wembley Park Retail                                                   | 2,701,522                    | 579,503                                   | 11,795                               | 58.6%                      | 2,352,989                    | 488,904                                   | 11,690                               | 58.2%                      |
| 5.2b Tenant Electricity [kWh]                                         | 10,869,902                   | 3,166,402                                 | 228,129                              | 77.8%                      | 9,399,956                    | 2,708,409                                 | 163,473                              | 89.3%                      |
| Wembley Park Estate                                                   | 19,723                       | 5,745                                     | 1,535                                | 100%                       | N/A                          | N/A                                       | N/A                                  | N/A                        |
| Quintain Living                                                       | 3,160,202                    | 920,567                                   | 179,768                              | 79.8%                      | 3,087,342                    | 889,556                                   | 117,583                              | 100%                       |
| Wembley Park Retail                                                   | 5,774,418                    | 1,682,088                                 | 36,887                               | 69.2%                      | 4,679,478                    | 1,348,298                                 | 36,116                               | 59.2%                      |
| Wembley Park Commercial                                               | Not Available                | Not Available                             | 1,763                                | 0%                         | Not Available                | Not Available                             | 1,599                                | 0%                         |
| Wembley Park Leisure                                                  | 1,915,558                    | 558,002                                   | 8,175                                | 85.2%                      | 1,633,137                    | 470,556                                   | 8,175                                | 85.2%                      |
| 5.2b Tenant Heat [kWh]                                                | 10,907,245                   | 3,285,921                                 | 180,292                              | 100%                       | 7,157,602                    | 2,006,069                                 | 117,583                              | 98.9%                      |
| Quintain Living                                                       | 10,907,245                   | 3,285,921                                 | 180,292                              | 100%                       | 7,157,602                    | 2,006,069                                 | 117,583                              | 98.9%                      |
| 5.2d Tenant Water [m <sup>3</sup> ]                                   | 109,633                      | 46,156                                    | 284,986                              | 83.4%                      | 120,990                      | 127,281                                   | 197,746                              | 90.7%                      |
| Wembley Park Estate                                                   | 0                            | 0                                         | 1,535                                | 0%                         | N/A                          | N/A                                       | N/A                                  | N/A                        |
| Quintain Living                                                       | 97,702                       | 41,133                                    | 238,342                              | 88.2%                      | 104,389                      | 109,817                                   | 151,055                              | 100%                       |
| Wembley Park Retail                                                   | 2,429                        | 1,023                                     | 36,706                               | 53.9%                      | 1,902                        | 2,001                                     | 36,916                               | 55.4%                      |
| Wembley Park Commercial                                               | 3,682                        | 1,550                                     | 1,763                                | 53.4%                      | 461                          | 485                                       | 1,599                                | 58.9%                      |
| Wembley Park Leisure                                                  | 5,820                        | 2,450                                     | 8,175                                | 85.2%                      | 14,238                       | 14,978                                    | 8,175                                | 85.2%                      |
| 5.2e Tenant Waste [tonnes]                                            | 1,501,538                    | 31,165                                    | 313,602                              | 96.8%                      | 907,070                      | 18,995                                    | 245,189                              | 84%                        |
| Quintain Living                                                       | 1,119,210                    | 23,513                                    | 241,891                              | 100%                       | 689,957                      | 14,538                                    | 171,097                              | 92.1%                      |
| Wembley Park Residential*                                             | 81,390                       | 1,710                                     | 25,716                               | 100%                       | 21,536                       | 452                                       | 6,561                                | 100%                       |
| Wembley Park Retail                                                   | 201,937                      | 3,937                                     | 38,205                               | 73.7%                      | 158,062                      | 3,234                                     | 44,092                               | 77.9%                      |
| Wembley Park Commercial                                               | 32,323                       | 688                                       | 821                                  | 100%                       | 11,857                       | 253                                       | 16,472                               | 4%                         |
| Wembley Park Leisure                                                  | 66,680                       | 1,316                                     | 6,968                                | 100%                       | 25,659                       | 518                                       | 6,968                                | 100%                       |
| 5.3 Emissions from End-of-Life Stage of the Product                   | 128,223                      | 9,420,644                                 | 128,223                              | 89.3%                      | 127,782                      | 6,944,064                                 | 127,782                              | 66%                        |
| 5.3a Embodied Emissions (Life-cycle stages C1 – C4) [m <sup>2</sup> ] | 128,223                      | 9,420,644                                 | 128,223                              | 89.3%                      | 127,782                      | 6,944,064                                 | 127,782                              | 66%                        |
| Wembley Park Estate                                                   | 10,566                       | Not Available                             | 10,566                               | 0%                         | 40,647                       | Not Available                             | 40,647                               | 0%                         |
| Quintain Living                                                       | 84,292                       | 6,938,971                                 | 84,292                               | 100%                       | 84,354                       | 6,944,064                                 | 84,354                               | 100%                       |
| Wembley Park Residential                                              | 30,147                       | 2,481,673                                 | 30,147                               | 100%                       | N/A                          | N/A                                       | N/A                                  | N/A                        |
| Wembley Park Retail                                                   | 267                          | Not Available                             | 267                                  | 0%                         | 2,781                        | Not Available                             | 2,781                                | 0%                         |
| Wembley Park Commercial                                               | 289                          | Not Available                             | 289                                  | 0%                         | N/A                          | N/A                                       | N/A                                  | N/A                        |
| Wembley Park Leisure                                                  | 2,661                        | Not Available                             | 2,661                                | 0%                         | N/A                          | N/A                                       | N/A                                  | N/A                        |

## INSIGHTS

### QUINTAIN LIVING

Our Quintain Living residents are responsible for the bulk of our downstream energy and water consumption, and are our primary focus in terms of targeted energy reductions.

Electricity and heat are consumed by all residents and increased by 2.36% and 52.4% respectively in 2021 compared with 2020. However, since 2020, our electricity data coverage has dropped from 100% to 79.8% as a result of unreliable data on some of our early buildings, resulting in an artificially lower increase than would otherwise be the case. If the missing data were included at 2020 levels, our electricity consumption would have increased by 45.6%.

In 2021 we added an additional 596,385 sqft of new residential apartment area, which is 29% of the Quintain Living resident area. This in turn accounted for 23% of electricity and 18% of heat consumption in 2021. As occupancy levels are currently low in these buildings, we expect their consumption to increase in 2022.

The occupancy of all Quintain Living buildings has increased since 2020, some quite significantly, which accounts for much of our increased consumption.

In 2021, we began to develop our Environmental Management System, utilising our raw energy and water consumption data; a piece of work that has been shortlisted for an ESG Award in the forthcoming Estates Gazette Tech Awards 2022.

Utilising a Cloud-based data warehouse, our consumption data, recorded at 15-minute intervals, is paired with other data we hold on each apartment, including physical properties such as floor area, floor level and orientation, and whether the unit is occupied; this allows various tools to be built around the data.

In 2020, we identified that vacant apartment consumption was abnormally high, so one of the first tools we developed was a Power BI report that is e-mailed daily to operational and facilities teams to flag unusual or unexpected consumption that requires further investigation. The team then investigate and log their response to each query, allowing us to continually refine the tool whilst reducing consumption.

Implemented in Q4 of 2021, this is already resulting in tangible savings and so far we have identified taps, showers or lights left running in unoccupied units and toilet cisterns that are continually flushing through; thermostats not 'set back' to a minimal heating schedule when unoccupied, resulting in the unnecessary heating of empty apartments; faulty valves on the district heating network, resulting in the bypass of thermostatic controls; and fault or improperly commissioned utility meters.

Future tools will support our design teams in understanding as-built building performance, allowing us to build more efficiently with less.

# 2021 GHG INVENTORY

## METHODOLOGY

### BASE-YEAR RECALCULATION

In 2020, we carried out a full evaluation of our base-year emissions and recalculated our base-year taking into account our significant divestments and new emission sources. There have been some minor changes in 2021, mostly reflecting the movement of assets and data between scopes, and where data is available for the first time in 2021 for an asset that was part of the base year GHG Inventory, this has been used to estimate base-year emissions in accordance with our procedures. Emissions from our downstream leased assets are now a significant part of our GHG Inventory, where previously they were not measured. The most significant inclusion however is emissions relating to embodied carbon at the three main life-cycle stages.

Table E sets out our original base-year, as well as our adjusted base-year taking into account the factors described above.

We have then provided a direct comparison with our recalculated base-year, taking into account only the assets and emission categories that are included in that total.

This results in an 11% increase in Scope 1 emissions; a 44% reduction in Scope 2 emissions; and a 37% reduction in Scope 3 emissions.

The table also breaks down the 2013/14 base-year and the recalculated base-year by GHG Inventory Category to allow a comparison with our 2021 GHG Inventory figures.

### DATA QUALITY

All GHG assessments – unless obtained through the direct measurement of gases released at source – are estimates.

The quality of our reporting is determined by the quality of our input data, the treatment of that data, the proportion of the overall data within scope that is available and the level of certainty we have that the activity data and emission factors we are applying are accurate. Our *GHG Policy and Data Management Procedures* set out how our data is obtained and treated in order to generate our GHG Inventory, and there are several measures used that provide indications of completeness and data quality.

### DATA COVERAGE

To account for missing data, we provide a coverage figure which gives an indication of the percentage of data that we have been able to obtain in each GHG Category based on floor area. Floor area isn't a perfect metric - not all supplies relate to a specific area (for example those that supply the public realm); and floor area is not a reliable indicator for the proportion of activity data and emissions that are missing, but it is the most consistently available data available to us.

Whilst we do estimate some data, this is only in specific circumstances, such as where we are missing a small portion of data across the year and we have sufficiently robust actual data from which to make an educated estimate.

Our target is to continue to improve our data collection to achieve a coverage level of 90% of data by Gross Internal Area across all emission sources.

Despite reductions in data coverage for some of our downstream leased assets, our overall coverage has improved across each emission scope in 2021.

Our most significant improvement is in the coverage of embodied emissions has increased from 66% of construction completed in 2021 to 89.3% of construction completed in 2021. This reflects our focus on the embodied carbon associated with our residential assets, which form the bulk of construction going forward.

### UNCERTAINTY

On completion of the GHG Inventory, an assessment of uncertainty in our GHG Inventory is made by applying an uncertainty interval to each source of activity and emission factor data based on the quality of the data.

Our Methodology section outlines our approach, as well as the sources of activity and emission factor data applied to our GHG Inventory and reported in this report, along with the uncertainty interval applied to that data and the calculation procedure we have adopted that results in the aggregated uncertainty levels in Table F. Based on the uncertainty estimates, we have also provided an upper and lower limit of potential emissions by emission source, as well as an aggregated total for all emissions.

Note that the more data included in the assessment, the lower the overall uncertainty level becomes; aggregated totals reflect this and are not a sum of the reported sub-category totals.

Our Category 1 emissions are a 'Good' representation of the emissions in this category; gas supplies from national grids show a small level of variation in emissions, and emission factors are therefore generally reliable. Our activity data is also of good quality, the majority based on actual meter reads or apportioned from actual meter reads. Vehicle emissions are based on fuel card consumption, which is deemed to be of good quality.

Our Category 2 emissions are deemed to be a 'Fair' representation of the emissions in this category; unlike gas from national grids, grid electricity fluctuates significantly depending on when it is consumed, and we do not have that level of granularity on our data, or the actual emissions associated with the electricity we consume.

This is typical of the market, and we do not envisage any improvements on this score in the medium-term, until electricity consumption and associated emissions are reported more accurately by suppliers. In our base-year, there were no heat supplies across our portfolio, in either Category 2 or Category 5.

## INSIGHTS

### DATA COVERAGE TARGET

Our data coverage target requires that we achieve at least 90% data coverage by Scope by 2025.

By obtaining additional Scope 3 data points, we managed to exceed this target in the 2021 reporting year and are now working towards meeting this target across all individual emission categories, whilst maintaining the same high level of existing data collection.

#### Scope 1

100%

[2020: 100%]

#### Scope 2

99.6%

[2020: 99.1%]

#### Scope 3

92.3%

[2020: 85.8%]

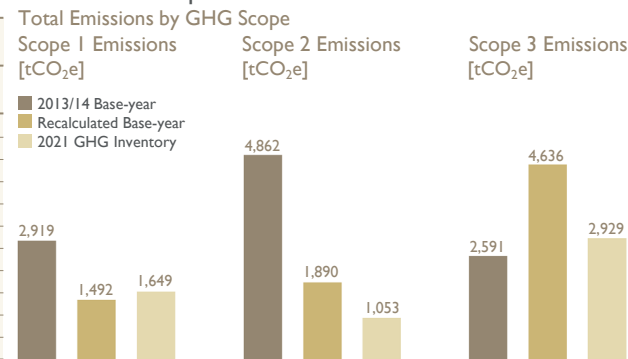
# 2021 GHG INVENTORY

## METHODOLOGY

### E. Comparison of 2021 GHG Inventory with Base-Year and Recalculated Base-Year by Scope and Entity

|                               | 2013/14 Base-Year            |                              |                              | Recalculated Base-Year       |                              |                              | 2021 Direct Comparison with Base-Year |                              |                              |
|-------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|------------------------------|---------------------------------------|------------------------------|------------------------------|
|                               | Scope 1 [tCO <sub>2</sub> e] | Scope 2 [tCO <sub>2</sub> e] | Scope 3 [tCO <sub>2</sub> e] | Scope 1 [tCO <sub>2</sub> e] | Scope 2 [tCO <sub>2</sub> e] | Scope 3 [tCO <sub>2</sub> e] | Scope 1 [tCO <sub>2</sub> e]          | Scope 2 [tCO <sub>2</sub> e] | Scope 3 [tCO <sub>2</sub> e] |
| TOTAL                         | 2,919                        | 4,862                        | 2,591                        | 1,492 <sup>8</sup>           | 1,890                        | 4,636                        | 1,649                                 | 1,053                        | 2,929                        |
| Corporate                     | 40                           | 166                          | 109                          | 21                           | 120                          | 89 <sup>9</sup>              | 5                                     | 47                           | 18                           |
| Wembley Park Estate           | 2,078                        | 1,953                        | 863                          | 1,468                        | 1,139                        | 534                          | 1,644                                 | 674                          | 541                          |
| Quintain Living               | N/A                          | N/A                          | N/A                          | N/A                          | N/A                          | N/A                          | N/A                                   | N/A                          | N/A                          |
| Wembley Park Residential      | N/A                          | N/A                          | N/A                          | N/A                          | N/A                          | N/A                          | N/A                                   | N/A                          | 2                            |
| Wembley Park Retail           | N/A                          | N/A <sup>1</sup>             | Not Available                | N/A                          | 630                          | 588                          | N/A                                   | 333                          | 1,805                        |
| Wembley Park Commercial       | N/A                          | N/A                          | N/A                          | N/A                          | N/A                          | N/A                          | N/A                                   | N/A                          | 1                            |
| Wembley Park Leisure          | N/A                          | N/A                          | Not Available                | N/A                          | N/A                          | 1,422                        | N/A                                   | N/A                          | 562                          |
| iQ Property Partnership (50%) | 547                          | 1,311                        | 233                          | Removed                      | Removed                      | Removed                      | N/A                                   | N/A                          | N/A                          |
| Other Assets                  | 77                           | 653                          | 1,247                        | Removed                      | Removed                      | Removed                      | N/A                                   | N/A                          | N/A                          |
| Assets Sold in Reporting Year | 177                          | 779                          | 139                          | Removed                      | Removed                      | Removed                      | N/A                                   | N/A                          | N/A                          |

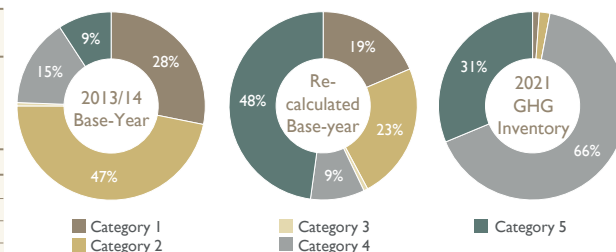
### Base-Year Comparison



### F. Uncertainty Analysis & GHG Inventory Base-Year Comparisons by Emission Category

|                                                                                       | 2013/14 Base-Year                  | Recalculated Base-Year             | 2021 GHG Inventory                 |                        |                                            |                                            |                     | Coverage % |
|---------------------------------------------------------------------------------------|------------------------------------|------------------------------------|------------------------------------|------------------------|--------------------------------------------|--------------------------------------------|---------------------|------------|
|                                                                                       | GHG Inventory [tCO <sub>2</sub> e] | GHG Inventory [tCO <sub>2</sub> e] | GHG Inventory [tCO <sub>2</sub> e] | Aggregated Uncertainty | Lower Limit Emissions [tCO <sub>2</sub> e] | Upper Limit Emissions [tCO <sub>2</sub> e] | Uncertainty Ranking |            |
| GHG INVENTORY                                                                         | 10,372                             | 7,962                              | 149,919                            | +/- 28.6%              | 106,980                                    | 192,858                                    | Fair                | 93%        |
| CATEGORY 1: DIRECT GHG EMISSIONS                                                      | 2,919                              | 1,492                              | 1,649                              | +/- 11.1%              | 1,465                                      | 1,833                                      | Good                | 100%       |
| 1.1 Direct Emissions from Stationary Combustion                                       | 2,907                              | 1,476                              | 1,643                              | +/- 11.2%              | 1,459                                      | 1,827                                      | Good                | 100%       |
| 1.2 Direct Emissions from Mobile Combustion                                           | 0                                  | 3                                  | 6                                  | +/- 15.7%              | 5                                          | 7                                          | Fair                | 100%       |
| 1.4 Direct Fugitive Emissions in Anthropogenic Systems                                | 13                                 | 13                                 | N/A                                | N/A                    | N/A                                        | N/A                                        | N/A                 | N/A        |
| CATEGORY 2: INDIRECT GHG EMISSIONS FROM IMPORTED ENERGY                               | 4,862                              | 1,890                              | 2,625                              | 28.9%                  | 1,865                                      | 3,384                                      | Fair                | 99.6%      |
| 2.1 Indirect Emissions from Imported Energy - Electricity                             | 4,862                              | 1,890                              | 2,540                              | 29.9%                  | 1,781                                      | 3,299                                      | Fair                | 99.6%      |
| 2.2 Indirect Emissions from Imported Energy -* Heat                                   | 0                                  | 0                                  | 85                                 | 31.6%                  | 58                                         | 112                                        | Poor                | 100%       |
| CATEGORY 3: INDIRECT GHG EMISSIONS FROM TRANSPORTATION                                | 59                                 | 56                                 | N/A                                | N/A                    | N/A                                        | N/A                                        | N/A                 | N/A        |
| 3.5 Emissions from Business Travel                                                    | 59                                 | 56                                 | N/A                                | N/A                    | N/A                                        | N/A                                        | N/A                 | N/A        |
| CATEGORY 4: INDIRECT GHG EMISSIONS FROM PRODUCTS & SERVICES                           | 1,578                              | 745                                | 94,410                             | 40.7%                  | 55,999                                     | 132,821                                    | Poor                | 96.9%      |
| 4.1 Emissions from Purchased Goods & Services <sup>1</sup>                            | 1,290                              | 712                                | 94,398                             | 40.7%                  | 55,987                                     | 132,808                                    | Poor                | 96.4%      |
| 4.3 Emissions from the Disposal of Solid and Liquid Waste <sup>2</sup> excludes water | 19                                 | 33                                 | 13                                 | 21.2%                  | 10                                         | 15                                         | Fair                | 97.9%      |
| 4.4 Emissions from the Use of Assets Leased by the Organisation                       | 268                                | N/A                                | N/A                                | N/A                    | N/A                                        | N/A                                        | N/A                 | N/A        |
| CATEGORY 5: INDIRECT EMISSIONS FROM THE USE OF PRODUCTS                               | 954                                | 3,836                              | 44,883                             | 42.5%                  | 25,799                                     | 63,967                                     | Poor                | 89.3%      |
| 5.1 Emissions from the Use Stage of the Product <sup>3</sup>                          | 954                                | 0 <sup>4</sup>                     | 28,353                             | 60.8%                  | 11,107                                     | 45,600                                     | Poor                | 89.3%      |
| 5.2 Emissions from Downstream Leased Assets                                           | N/A                                | 3,836                              | 6,674                              | 18.2%                  | 5,461                                      | 7,886                                      | Fair                | 90.1%      |
| 5.3 Emissions from End-of-Life Stage of the Product                                   | N/A                                | N/A                                | 9,421                              | 85.6%                  | 1,358                                      | 17,483                                     | Poor                | 89.3%      |

### % Total Emissions by GHG Inventory Category



## INSIGHTS

### OUR CHANGING EMISSION PROFILE

As our business has evolved, so has our emission profile. In our base-year, 2013/14, we owned a broad portfolio of standing assets, located across the UK and in multiple sectors. Over time, we have divested from our non-core operations to focus on the development of Wembley Park. With fewer operational assets, our Scope 1 and Scope 2 emissions reduced dramatically, but are increasing again as more buildings are completed and become standing assets. At the same time our Scope 3 emissions, particularly those in categories 4 and 5 associated with embodied emissions, have increased significantly and are now our predominant emission source.

<sup>8</sup> Base-year includes Category 1.4 Direct Fugitive Emissions in Anthropogenic Systems, which are not included in the 2021 GHG Inventory.

<sup>9</sup> Base-year includes Category 3.5 Emissions from Business Travel, which are not included in the 2021 GHG Inventory.



# 2021 GHG INVENTORY

## METHODOLOGY

This section describes how we obtain and assess the quality of our activity data and emission factors, as well as how our data is aggregated and what we mean by some of the terminology we have used in this report. Our GHG Policy and Data Management Procedures set out our approach in full and can be found on our website.

### UNCERTAINTY

The quality of activity and emission factor sources have a direct impact on the quality of the GHG Inventory; the robustness of emissions reporting is dependent on the quality of data used to calculate the emissions profile, and the communication of any uncertainties.

in accordance with the requirements of ISO 14064:1, we assess the uncertainty associated with the quantification approaches we use and conduct an assessment that determines the level of uncertainty at the GHG Inventory Category level.

### SOURCES OF UNCERTAINTY

Sources for uncertainty arise along the value chain when any assumptions are made, or emissions are not directly measured. In relation to our emissions data, the following have been identified as the key uncertainties:

#### SCIENTIFIC UNCERTAINTY

Calculated in the UK by BEIS, based on a range of inputs and outputs. The process does not measure exact emissions into the air, but rather uses a series of educated assumptions, presenting a degree of scientific uncertainty. The use of BEIS emissions factors is widespread across UK companies reporting their UK emissions. For this reason, despite the scientific uncertainty in those factors, the ability to compare data between companies, and over time, will not be affected, and it is beyond the scope of our analysis to measure beyond the induced parameter uncertainty.

#### MODEL UNCERTAINTY

The use of equations to characterise the relationships between various parameters and emissions process can introduce model uncertainty if incorrect inputs and / or equations are used. Our quality management procedures and external assurance processes are

used to address and eliminate this risk and model uncertainty risks are therefore not considered further.

#### PARAMETER UNCERTAINTY

Quantifying the parameters used as inputs, for example activity data or emissions factors, can lead to parameter uncertainty. Emission estimation models that consist of only activity data multiplied by an emission factor only involve parameter uncertainties, assuming that emissions are perfectly linearly correlated with the activity data parameter. Parameter uncertainties are the subject of the uncertainty analysis that we carry out annually on our data and are included in this report.

### PARAMETER UNCERTAINTIES

#### SYSTEMATIC UNCERTAINTY

Systematic uncertainty occurs if data are systematically biased – if the average of measured or estimate values is always higher or lower than the true value. Such biases can arise because emissions factors are constructed from non-representative samples, all relevant source activities or categories have not been identified, or incorrect or incomplete estimation methods or faulty measurement equipment have been used.

Our data management procedures are implemented to ensure that errors in transcription and calculation are reduced, but systematic uncertainties are not considered beyond this.

#### STATISTICAL UNCERTAINTY

Statistical uncertainty results from natural variations (e.g. random human errors in the measurement process, fluctuations in equipment) and can be estimated, assuming a normal distribution of the relevant variables. Measurement of statistical uncertainty is presented as an uncertainty range of +/- percent of the mean value reported.

#### THE GHG PROTOCOL UNCERTAINTY TOOL

The GHG Protocol produce an Uncertainty Tool for the calculation of parametric uncertainty in GHG inventories and *GHG Protocol Guidance on Uncertainty Assessment in GHG Inventories and Calculating Statistical Parameter Uncertainty*. We have adopted the use of this tool for calculating the parametric statistical uncertainty of our GHG Inventory. The tool applies the first order error propagation method (Gaussian Method) to calculate a simple assessment of statistical uncertainty. The guidance provides a typical, although arbitrary, scale for the quantitative assessment of data accuracy for the different inputs; we have used this as a basis for determining uncertainty levels,

but do not use the High/ Good/ Fair/ Poor scale published in the directly.

It then ranks data accuracy based on the scale above at several levels:

- Single source data for indirectly measured emissions (activity data and emission data)
- The sub-total and total level

Additional advice is provided on the ranking that should be given to different types of data; where relevant, this has been used to determine the rankings of data quality described for activity and emission data, summarised below.

| Data Accuracy | Interval as % of Mean Value |
|---------------|-----------------------------|
| High          | +/- 5%                      |
| Good          | +/- 15%                     |
| Fair          | +/- 30%                     |
| Poor          | > 30%                       |

At the end of each reporting period, an assessment of uncertainty is made by inputting the quantities of emissions by GHG Inventory sub-category with the data quality factors determined. An overall assessment of quality is presented for each emission category using the High – Poor scale above.

The GHG Inventory includes an assessment of data quality for each GHG Inventory sub-category. For metered supplies, this is calculated by allocating the activity data to the relevant data type and corresponding data quality. This data is aggregated at the GHG Inventory sub-category level, and uncertainty analysis is applied to each sub-category. For other data types, our approach to the assessment of data quality is described in the following sections on Activity Data and Emission Factors by Source and set out in Table MI.

## ACTIVITY DATA BY SOURCE

### METER READINGS

Meter readings relate directly to the assets and supplies under consideration and are considered 'Primary Data'. Meter reads are the main source of activity data for most electricity, gas, heat and water supplies, including those that are remotely read (in this case, meter reads are used to corroborate automated data).

### GRID ELECTRICITY & WATER

Electricity and water meters measure precise volumes or pulses and are considered to be highly accurate in their measurement of consumption. Main incoming supplies are preferred over sub-metered

# 2021 GHG INVENTORY

## METHODOLOGY

data as these are payment-grade and provide additional reassurance over the quality of the data.

Where data is based entirely on meter reads between the start and end date of the reporting period, this is considered to be of 'High' quality, and an uncertainty interval of +/- 5% is applied.

Where data is apportioned based on actual data for periods outside the reporting period, this is considered to be of 'Good-High' quality, and an uncertainty interval of +/- 10% is applied.

Data is only estimated where historic supply information is available within the reporting period. Historic daily consumption covering an appropriate time period is applied to missing data periods and as this is specific to the supply, this is considered to be 'Good' quality, with an uncertainty interval of +/- 15% applied. Estimates that are not based on supply data, including that provided by suppliers, are not used; the supply is instead reported as having 0% data coverage for the period.

### NATURAL GAS

Although the measurement of gas volumes is as accurate as that for electricity and water, an additional calculation has to be performed to convert the volume of gas consumed into energy. This is based on standard conversion factors and the calorific value of the gas, which varies throughout the day. Where billing data is available, this includes the conversion figures required and is applied to the consumption total. Where a calorific value specific to the supply is not available, gas transmission data, including calorific value, is available from National Grid, specific to the Local Distribution Zone (LDZ); supplies in London are located in LDZ NT (North Thames) and an annual average calorific value for gas supplies at Wembley Park of 39.26 MJ/m<sup>3</sup> has been calculated and applied where calorific data from the supplier is unavailable. Where this is the case, data quality is downgraded to the same level as apportioned electricity and water data. If already apportioned, the increase in uncertainty is considered to already be accounted for in the increased uncertainty interval.

### HEAT

Heat is metered by measuring the temperature differential between two points, which is less accurate than measuring a pulse or volume if not correctly installed (e.g. the distance between measured points is too short or too long, or there is a bend in pipework between two points), then an inaccurate reading will be produced.

The quality of heat meter read data is therefore considered to be slightly lower than that of electricity and water meter data:

- Meter data interval of +/- 10%
- Apportioned data interval of +/- 15%
- Estimated data interval of +/- 20%

### FUEL CARD DATA

Fuel consumed in vehicles is recorded by fuel cards and is deemed to be a highly accurate record of consumption with an interval of +/- 5% applied. Where apportioned to cover periods at the start or end of a year, the start and end mileage between fuel tank refills is used to apportion fuel use by day. As the data is recorded weekly, this is not likely to result in any significant uncertainty, and no adjustments to the uncertainty interval are applied.

### COMMERCIAL WASTE COLLECTION DATA

Primary activity data is used, based on actual waste generated and quantified at source; as this is directly measured, it is considered to be of 'High' quality, with an interval of +/- 5% applied.

Prior to 2020, residential waste not collected via Envac was collected by the local authority. Data was not available relating to the weight or breakdown of this waste, and it was proposed that we would make an estimate of residential waste based on local authority collection data. In late 2020, a decision was made to appoint a commercial waste contractor to collect residential waste and we now have a full year of data. However, this is only considered to be a 'Fair-Good' representation of activity data, with an interval of +/- 20% applied.

The waste contractor have confirmed that all data that is provided to us based on the actual weight of waste collected and no estimations have been applied. This is considered to be of 'Good-High' quality, with a +/- 10% interval applied.

### EMBODIED CARBON

The activity factor for the purposes of embodied carbon is the Gross Internal Area (GIA) of the asset (or partial asset) completed and handed over in the reporting year. This is calculated based on labelled drawings and records for each asset. As actual floor area can differ from design data, this data is considered to be of 'Good-High' quality with an interval of +/- 10% applied.

### EMISSION FACTORS BY SOURCE

Uncertainty intervals for emission factors are summarized in Table M2 by GHG Inventory Category on page 17. These are calculated based on the assumptions that follow.

### NATURAL GAS, PETROL & DIESEL (BEIS 2021 & 2020)

#### *Direct & Indirect (upstream) Emissions*

All fuel conversion factors in the BEIS dataset are based on the emission factors used in the UK GHG Inventory (GHGI) for 2019 (2021) and 2018 (2020).

Natural gas consumption figures quoted in kWh by suppliers in the UK are generally calculated from the volume of gas used, on a Gross CV basis, and the Gross CV emission factor is the default factor for the calculation of emissions.

Information on quantities and source of imported gas are available annually from Digest of UK Energy Statistics (DUKES), which relates to two-years prior to the year the emission factors will be applied to (i.e. 2021 emission factors apply 2019 DUKES data) and are used to calculate the proportion of gas in UK supply coming from each source. This is used to provide a weighted average for UK supply.

As there are only very small changes in the emissions associated with mains gas between different years, the fact that the emissions data applied is two-years out of date is not considered to be a significant issue.

The GHG Protocol guidance on uncertainty determines that carbon content is almost standard for national supplies, and emission factor data calculated in this way is 'High' quality; however, as the data used to calculate UK emission factors is an average of data from multiple countries from within the EU, an uncertainty interval of +/- 10% has been applied.

Upstream emission factors used to report FERA emissions are taken from a 2015 study by Exergia. Indirect Well-to-Tank (WTT) emissions for natural gas are based on:

- Estimates of emissions associated with supply in major gas procuring countries supplying the EU (piped gas and LNG)
  - The pattern of supply for each member state
  - A combination of emission data associated with supply patterns
- The methodology developed allows for the value calculated for gas supply in the UK to be updated annually, reflecting changes in the sources of imported gas to be reflected in the emission factor. For petrol and diesel, the Exergia study is based on:
- Detailed modelling of upstream emissions associated with 35 crude oils used in EU refining, accounting for 88% of imported oil in 2012.
  - Estimates of emissions associated with then transport of these oils

# 2021 GHG INVENTORY

## METHODOLOGY

- Emissions from refining, modelled on a country by country basis, based on specific refinery types by location and the calculation of an EU average based on the proportion of each crude oil going to each refinery type
- An estimate of emissions associated with imported finished products from Russia and the US.

Conversion factors are also calculated for forecourt petrol and diesel biodiesel as a proportion of the total supply based on Department for taking into account the component of bioethanol (petrol) and Transport Renewable Fuel statistics.

As the background data used in these studies is now several years out of date, an uncertainty interval of +/- 15% has been applied.

### GRID ELECTRICITY (BEIS 2021 & 2020)

Electricity conversion factors represent the average CO<sub>2</sub> emissions from the UK national grid per kWh of electricity generated. The UK grid electricity factor changes from year to year as the fuel mix consumed in UK power stations and autogenerators changes, and the proportion of net imported electricity also changes. Since 2012, the proportion of energy generated from coal has decreased significantly from circa 40% to less than 20%, with the proportion of electricity generated from gas and renewables has increased.

The UK electricity emission factors provided in the 2021 (2020) GHG Conversion Factors are based on emissions from sector 1A1a1 (power stations) and 1A2b (autogenerators) in the GHGI for 2019 (2018) according to the amount of CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O emitted per unit of electricity consumed (DUKES 2020 (2019)). The UK is a net importer of electricity from the interconnectors with France, the Netherlands and Ireland, and net imports are calculated from DUKES data, with an average imported electricity emission factor calculated from the individual factors for the relevant countries weighted by their respective share of net imports.

The GHG Protocol guidance on uncertainty states that electricity emission factors are to be considered 'Fair' if an annual average is used for a grid with multiple fuel sources. This is downgraded to 'Poor' to reflect that emissions are based on data that is two years old and there is significant variation between years in how electricity is generated. Emission factors are likely to significantly over-estimate actual emissions as a result and a resulting uncertainty interval of +/- 30% is therefore applied.

### HEAT (calculated from generator data)

Heat emission factors are calculated based on gas and electricity import and export data, total heat generation and total heat delivery provided by the heat generator.

#### EASTERN LANDS ENERGY CENTRE (METROPOLITAN)

Metropolitan provide detailed data on each of the three boilers and two combined heat and power (CHP) engines that contribute to the generation of heat at the Eastern Lands Energy Centre, in addition to emission factors (described earlier) to generate the total carbon emissions associated with the generation of heat and power. This is all electricity imported and exported from the energy centre. Total input mains gas and grid electricity are multiplied by their respective then divided by the total heat and power exported to derive a quantity of CO<sub>2</sub>e per kWh of energy by end user.

The underlying energy import and export data is assumed to be reliable, although this has not been assured or verified. The emission factors applied are the same as those described for Mains Gas and Grid Electricity, with their respective uncertainties applied. Conservatively, an uncertainty interval of +/- 30% is applied.

#### NORTH WEST LANDS ENERGY CENTRE (EON)

The NW Lands Energy Centre is designed to initially operate using gas boiler plant. Eon have had some difficulties in obtaining accurate gas consumption data, either from the main supply or via the BMS, and currently estimate their gas consumption based on an assumed efficiency of their boilers. The total gas consumed is compared with the total heat consumed by end users, some of which is also estimated, to calculate an emission factor for heat. Due to the high level of uncertainty in the inputs used for calculating the emission factor for heat, and uncertainty interval of +/-50% is applied.

### WATER (BEIS 2021 & 2020)

The emission factors for water supply and treatment in sections "Water supply" and "Water treatment" of the 2021 (2020) GHG Conversion Factors were calculated based on 2020 data from UK water companies *Carbon Accounting Workbooks* (CAW). These data give GHG intensity for each water company for water supply and wastewater treatment accounting for emissions associated with offices and transport. Note that the methodology does not specifically state that emissions relating to the actual treatment and supply of water are included in the figures. In addition, the BEIS Methodology Paper states that this data is subject to significant uncertainty, so these emission

factors are considered to be 'Poor' quality with an uncertainty level of +/-30% applied.

In 2020 (2019) emission factors were obtained from *Water UK* and are based on submissions by UK water suppliers. Water UK represents all UK water and wastewater service suppliers at national and European level. Water UK (2011) gives total GHG emissions from water supply, wastewater treatment, offices, and transport. In the 2012 update of the GHG Conversion Factors, these emissions were split between Water Supply and Water Treatment using the same proportional split from previous years. However, since this publication, Water UK has discontinued its "Sustainability Indicators" report and so no longer produces further updates to these emission factors. Therefore, the Conversion Factors had remained unchanged since the 2012 GHG Conversion Factors values. In the intervening period there were significant reductions in emissions from sources likely to affect water treatment operations; these emission factors are therefore likely to be over-estimates and are considered to be 'Poor' quality with an uncertainty level of +/-30% applied.

### WASTE (BEIS 2021 & 2020)

The methodology applied in calculating the waste emission factors assumes emissions attributed to the company which generates the waste cover only the collection of waste from their site. Under this standard, in order to avoid double-counting, the emissions associated with recycling are attributed to the user of the recycled materials, and the same attribution approach has also been applied to the emissions from energy generation from waste. Only transportation and minimal preparation emissions are attributed to the entity disposing of the waste. Landfill emissions remain within the accounting Scope of the organisation producing waste materials.

Figures for Refuse Collection Vehicles have been taken from the Environment Agency's *Waste and Resource Assessment Tool for the Environment* (WRATE) (Environment Agency, 2010).

Waste collected at Wembley Park is sent to the Veolia Waste Transfer Station at Marsh Road, located just over 5km away. From there, waste is segregated further and sent either for recycling (dry recycling) at various facilities depending on the material; for the production Waste (EFW) facility located in Lewisham (30km away). The transport distances for waste used to calculate emission factors are estimated, assuming 10km by road to a transfer station, 25km by road to a MRF or 50km to a municipal waste incineration/ EFW plant.

# 2021 GHG INVENTORY

## METHODOLOGY

Given the proximity of Wembley to these end destinations, this is likely to result in an over-estimate of distances and resulting emissions. Road vehicles are volume limited rather than weight limited. For all HGVs, an average loading factor (including return journeys) is used based on the HGV factors provided in the 2020 Conversion factors. Waste vehicles leave a depot empty and return fully laden. A 50% loading assumption reflects the change in load over a collection round which could be expected.

The methodology described above has not been updated since 2010, and conversion factors for transport apply 2017 figures. The freight sector, including the transportation of waste has seen significant improvements over recent years, so this is likely to over-estimate emissions. For the reasons outlined above, waste emission factors are considered to be a poor representation of emissions, resulting in an uncertainty interval of +/- 30%.

### EMBODIED CARBON (NW07/08 Cundall Report) STAGES A1 – A5: PRODUCT & CONSTRUCTION

The product emissions generated at this stage arise from extracting the raw materials from the ground, their transport to a point of Manufacture and then the primary energy used (and the associated carbon impacts that arise) from transforming the raw materials into construction products. During construction, impacts arise from the transportation of construction products to site and their subsequent processing and assembly in the building.

Emissions from MEP were excluded from the assessment, but benchmark data for similar projects were used to estimate their contribution, and this is included in the total. The remaining data is based on actual materials used, their locations of manufacture and manufacturing methods, and their distance to the construction site. Much of this data is obtained via Environmental Product Declarations, but where these are not available, other sources of emission factor data, such as embodied carbon databases, have been used to determine total emissions. Site emissions are also included specific to monitoring at NW07/08.

The following materials were excluded from the assessment:

- Furniture in residential apartments
- WC fittings/ sanitaryware
- External services (e.g. utilities, manholes etc.)
- Soft landscaping and water features.

The study provides a comparison between other similar assets that

Cundall have assessed, with emissions ranging from between 600kgCO<sub>2</sub>e/m<sup>2</sup> to 1,150kgCO<sub>2</sub>e/m<sup>2</sup>. Given that all construction at Wembley Park is relatively similar, and the figure for NW07/08 is just under the average figure for similar projects, it is applied to the GIA of other residential assets where no site-specific study is undertaken. Due to the excluded elements, assumptions relating to MEP, and the potential for error that arises when utilising multiple 3<sup>rd</sup> party activity, no estimates of emissions were applied to these items.

These emissions are recorded in the reporting year that the building is completed but are estimates of emissions that will occur in the future. A 60-year life-cycle period has been assumed, and maintenance and replacement schedules, based on manufacturer guidance, has been used to determine the frequency of these events which will result in data sources to generate an emission factor, an uncertainty interval of 30% has been applied to the emission factor that is derived from this phase of the embodied carbon assessment where it is applied to the asset that was assessed, downgraded to +/- 40% when applied to a different asset of the same building type. This data is only used to represent residential assets.

### STAGES B1 – B5: IN-USE

This stage covers a wide range of sources, from the embodied carbon emissions associated with the operation of the building, including the materials used during maintenance, replacement and refurbishment. emissions. These are guidelines, and are likely to be conservative, resulting in an over-estimate of frequency. The building life-cycle is also likely to be an under-estimate.

The emissions associated with materials used in the maintenance and replacement of materials installed during construction are also likely to over-estimate emissions as a result of the increasing decarbonisation of energy supplies and industrial practices. If a zero -carbon economy is achieved by 2050, then there will be zero emissions associated with these materials in thirty years, just mid-way through the life-cycle period under review.

For the reasons stated above, the emission factor generated through the consideration of in-use emissions is assigned an uncertainty level of +/- 50% where it is applied to the asset that was assessed, downgraded to +/- 60% when applied to a different asset of the same building type. This data is only used to represent residential assets.

### STAGES C1 – C4: END-OF-LIFE

The eventual deconstruction and disposal of the building at the end of its life takes into account the on-site activities of the demolition

contractors. No 'credit' is taken for any future carbon benefit associated with the reuse or recycling of a material into new products. Although this activity is assumed to be carried out in 2079, at the end of the 60-year design life, there is no consideration of the committed actions to deliver a zero-carbon economy by 2050. In addition, the carbon benefit of materials reuse – which is already widespread – has not been taken into account. In combination, rather than a source of emissions, this stage is more likely to generate an emission sink, and the uncertainty interval applied is therefore +/- 75% where it is applied to the asset that was assessed, downgraded to +/-85% when applied to a different asset of the same building type. This data is only used to represent residential assets.

## AGGREGATION OF GHG EMISSION DATA

GHG emissions are aggregated in a number of ways, generating totals by GHG Emission Scope, GHG Emission Category and Sub-Category, and for each of the above, by the following reporting entities within the business:

- |                            |                        |
|----------------------------|------------------------|
| • Corporate                | • Wembley Pak Retail   |
| • Wembley Park Estate      | • Wembley Park         |
| • Quintain Living          | Commercial             |
| • Wembley Park Residential | • Wembley Park Leisure |

## DATA COVERAGE

Data coverage is calculated based on the Gross Internal Area for which we have been able to obtain data as a proportion of the total Gross Internal Area for assets included within a GHG Inventory Category. This data forms the basis for the measurement of our performance against our annual target to achieve 90% data coverage across all data sources. In some instances, for example where an energy or water supply supplies the public realm, no area is included and the supplies are excluded from the coverage calculation. As in most cases we have data for these areas, coverage figures are likely to under-estimate actual data coverage

## ANNUALISED AREA

As our portfolio of standing assets increases year on year, and assets are handed over from construction part-way through reporting years, we calculate an 'annualised area' based on the proportion of the year the asset was considered a 'standing asset'. This is calculated by multiplying the area by the number of days it was operational and dividing by the number of days in the year.

# 2021 GHG INVENTORY

## METHODOLOGY

### GLOBAL WARMING POTENTIAL (GWP)

All emission factors used in the GHG Inventory present non-carbon dioxide (CO<sub>2</sub>) GHGs as CO<sub>2</sub> equivalents (CO<sub>2</sub>e), using Global Warming Potential (GWP) factors from the Intergovernmental Panel on Climate Change (IPCC)'s Fourth Assessment Report that describes the total warming impact of the six greenhouse gases covered by the Kyoto Protocol: methane (CH<sub>4</sub>); nitrous oxides (N<sub>2</sub>O); hydrofluorocarbons (HFCs); perfluorocarbons (PFCs); and sulphur hexafluoride (SF<sub>6</sub>). Only CO<sub>2</sub>, CH<sub>4</sub> and N<sub>2</sub>O are included in the BEIS GHG Conversion Factors. This is consistent with reporting under the United Nations Framework Convention on Climate Change

| Greenhouse Gas                    | GWP |
|-----------------------------------|-----|
| Carbon dioxide (CO <sub>2</sub> ) | 1   |
| Methane (CH <sub>4</sub> )        | 25  |
| Nitrous oxide (N <sub>2</sub> O)  | 298 |

(UNFCCC) and with the UK Greenhouse Gas Inventory, upon which the 2020 and 2021 GHG Conversion Factors are based. The underlying methodology states that this is because although the IPCC has prepared a newer version of GWP figures, methods have not yet been officially accepted for use under the UNFCCC.

### TABLES

TABLE M1: DATA SOURCE UNCERTAINTY INTERVALS

| Category & Data Source                                                            | Uncertainty Interval |
|-----------------------------------------------------------------------------------|----------------------|
| 1.1a & 5.2a Mains Gas, 2.1a & 5.2b Grid Electricity, 4.1b FERA, 4.3a & 5.2d Water |                      |
| Meter Read Data: Actual                                                           | +/- 5%               |
| Meter Read Data: Apportioned                                                      | +/- 10%              |
| Meter Read Data: Estimated Data                                                   | +/- 15%              |
| 1.2a Petrol, 1.2b Diesel                                                          |                      |
| Fuel card data                                                                    | +/- 5%               |
| 2.1b & 5.2c Heat                                                                  |                      |
| Actual Data                                                                       | +/- 10%              |
| Apportioned Data                                                                  | +/- 15%              |
| Estimated Data                                                                    | +/- 20%              |
| 4.1a Embodied Carbon (Life-cycle stages A1 – A5)                                  |                      |
| Measured Building Area                                                            | +/- 10%              |
| 4.3b & 5.2f Waste                                                                 |                      |
| Waste tonnage measured on removal                                                 | +/- 5%               |
| Waste tonnage calculated based on measured volume                                 | +/- 10%              |
| Waste tonnage estimated                                                           | +/- 20%              |
| 5.1a Embodied Carbon (Life-cycle stages B1 – B5)                                  |                      |
| Measured Building Area                                                            | +/- 10%              |
| 5.3a Embodied Emissions (life-cycle stages C1 – C3)                               |                      |
| Measured Building Area                                                            | +/- 10%              |

TABLE M2: EMISSION FACTORS & EMISSION FACTOR UNCERTAINTY INTERVALS

| GHG Emission Category & Data Source                             | EF 2021    | EF 2020    | Emission Factor Source                                                                              | Uncertainty Interval |
|-----------------------------------------------------------------|------------|------------|-----------------------------------------------------------------------------------------------------|----------------------|
| 1.1 Direct emissions from stationary combustion                 | -          | -          |                                                                                                     | -                    |
| 1.1a Mains Gas                                                  | 0.183      | 0.184      | BEIS 2021 > Fuels > Natural Gas > > kgCO <sub>2</sub> e/kWh (Gross CV)                              | +/- 10%              |
| 1.2 Direct emissions from mobile combustion                     | -          | -          |                                                                                                     | -                    |
| 1.2a Petrol (average biofuel blend)                             | 0.230      | 0.229      | BEIS 2021 > Fuels > Petrol (average biofuel blend) > kgCO <sub>2</sub> e/kWh (Gross CV)             | +/- 15%              |
| 1.2b Diesel (average biofuel blend)                             | 0.237      | 0.241      | BEIS 2021 > Fuels > Diesel (average biofuel blend) > kgCO <sub>2</sub> e/kWh (Gross CV)             | +/- 15%              |
| 2.1 Indirect emissions from imported electricity                | -          | -          |                                                                                                     | -                    |
| 2.1a Grid electricity                                           | 0.212      | 0.233      | BEIS 2021 > UK Electricity > Electricity Generated > kgCO <sub>2</sub> e                            | +/- 30%              |
| 2.2 Indirect emissions from imported energy                     | -          | -          |                                                                                                     | -                    |
| 2.2a Eastern Lands Energy Centre (Metropolitan)                 | 0.237      | 0.199      | kgCO <sub>2</sub> e/kWh > EL Energy Centre Heat Calculations                                        | +/- 30%              |
| 2.2b NW Lands Energy Centre (EOn)                               | 0.363      | 0.361      | kgCO <sub>2</sub> e/kWh > NW Energy Centre Heat Calculations                                        | +/- 50%              |
| 4.1 Emissions from purchased goods                              | -          | -          |                                                                                                     | -                    |
| 4.1a Residential Embodied Carbon (Life-cycle stages A1 – A5)    | 814.033    | 814.033    | Quintain Wembley – Embodied Carbon Review (NW07/08) > kgCO <sub>2</sub> e/m <sup>2</sup> GIA        | +/- 40%              |
| 4.1b Fuel and Energy Related Activities                         | -          | -          |                                                                                                     | -                    |
| 4.1ba Gas Supply                                                | -          | -          |                                                                                                     | -                    |
| - Well-to-tank                                                  | 0.031      | 0.024      | BEIS 2021 > WTT-Fuels > Natural Gas > kWh (Gross CV) > kgCO <sub>2</sub> e/kWh                      | +/- 10%              |
| 4.1bb Electricity Supply                                        | 0.079      | 0.055      |                                                                                                     | -                    |
| - Well-to-tank (generation)                                     | 0.055      | 0.032      | BEIS 2021 > WTT-UK & Overseas elec > WTT - UK electricity (generation) > kgCO <sub>2</sub> e/kWh    | +/- 30%              |
| - Well-to-tank (transport & distribution)                       | 0.005      | 0.003      | BEIS 2021 > WTT-UK & Overseas elec > WTT - UK electricity (T&D) > kgCO <sub>2</sub> e/kWh           | +/- 30%              |
| - Transmission & distribution                                   | 0.019      | 0.020      | BEIS 2021 > T&D > UK Electricity > kgCO <sub>2</sub> e/kWh                                          | +/- 30%              |
| 4.1bc Eastern Lands Energy Centre (Metropolitan)                | 0.036      | 0.024      | kgCO <sub>2</sub> e/kWh > EL Energy Centre Heat Calculations                                        | +/- 30%              |
| 4.1bd North West Lands Energy Centre (EOn)                      | 0.051      | 0.047      | kgCO <sub>2</sub> e/kWh > NW Energy Centre Heat Calculations                                        | +/- 50%              |
| 4.1be Petrol Supply                                             | -          | -          |                                                                                                     | -                    |
| - Well-to-tank (extraction, refining, transport)                | 0.064      | 0.063      | BEIS 2021 > WTT-Fuels > Fuels > Petrol (average biofuel blend) > kgCO <sub>2</sub> e/kWh (Gross CV) | +/- 15%              |
| 4.1bf Diesel Supply                                             | -          | -          |                                                                                                     | -                    |
| - Well-to-tank (extraction, refining, transport)                | 0.058      | 0.058      | BEIS 2021 > WTT-Fuels > Fuels > Diesel (average biofuel blend) > kgCO <sub>2</sub> e/kWh (Gross CV) | +/- 15%              |
| 4.3 Emissions from the disposal of solid and liquid waste       | -          | -          |                                                                                                     | -                    |
| 4.3a Water                                                      | 0.421      | 1.052      |                                                                                                     | -                    |
| - Mains Incoming Water Supply                                   | 0.149      | 0.344      | BEIS 2021 > Water Supply > cubic metres > kgCO <sub>2</sub> e/cubic metre                           | +/- 30%              |
| - Mains Incoming Water Removal                                  | 0.272      | 0.708      | BEIS 2021 > Water Treatment > cubic metres > kgCO <sub>2</sub> e/cubic metre                        | +/- 30%              |
| 4.3b Waste                                                      | -          | -          |                                                                                                     | -                    |
| 4.3aa Household/ Commercial EFW                                 | 21.294     | 21.317     | BEIS 2021 > Waste disposal > tonnes > kgCO <sub>2</sub> e                                           | +/- 30%              |
| 4.3ab Open or closed loop recycling                             | 21.317     | 21.317     | BEIS 2021 > Waste disposal > tonnes > kgCO <sub>2</sub> e                                           | +/- 30%              |
| 4.3ac Organic (composting/ anaerobic digestion)                 | 10.204     | 10.204     | BEIS 2021 > Waste disposal > tonnes > kgCO <sub>2</sub> e                                           | +/- 30%              |
| 5.1 Emissions or removals from the use stage of the product     | -          | -          |                                                                                                     | -                    |
| 5.1a Residential Embodied Carbon (Life-cycle stages B1 – B5)    | 247.760    | 247.760    | Quintain Wembley – Embodied Carbon Review (NW07/08) > kgCO <sub>2</sub> e/m <sup>2</sup> GIA        | +/- 60%              |
| 5.2 Emissions from downstream leased assets                     | -          | -          |                                                                                                     | -                    |
| 5.2a Gas                                                        | 0.215      | 0.208      | 1.1a & 4.1ba above                                                                                  | +/- 10%              |
| 5.2b Electricity                                                | 0.291      | 0.288      | 2.1a & 4.1bb above                                                                                  | +/- 30%              |
| 5.2c Heat                                                       | -          | -          |                                                                                                     | -                    |
| 5.2ca Eastern Lands Energy Centre (Metropolitan)                | 0.274      | 0.223      | 2.2a & 4.1bc above                                                                                  | +/- 30%              |
| 5.2cb North West Lands Energy Centre (EOn)                      | 0.414      | 0.408      | 2.2b & 4.1bc above                                                                                  | +/- 50%              |
| 5.2d Water                                                      | 4.3a above | 4.3a above | 4.3a above                                                                                          | +/- 30%              |
| 5.2e Waste                                                      | 4.3b above | 4.3b above | 4.3b above                                                                                          | +/- 30%              |
| 5.3 Emissions from end-of-life stage of the product             | -          | -          |                                                                                                     | -                    |
| 5.3a Residential Embodied Emissions (life-cycle stages C1 – C3) | 83.320     | 83.320     | Quintain Wembley – Embodied Carbon Review (NW07/08) > kgCO <sub>2</sub> e/m <sup>2</sup> GIA        | +/- 85%              |