



## Land east of Westergate, Aldingbourne

### Energy Statement

On behalf of CALA Homes (South Home Counties)

Project Ref: 333100278 | Rev: 03 | Date: September 2023

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## Document Control Sheet

**Project Name:** Land east of Westergate, Aldingbourne  
**Project Ref:** 333100278  
**Report Title:** Energy Statement  
**Doc Ref:** 333100278/A5  
**Date:** September 2023

| Revision                                | Date           | Description              | Prepared | Reviewed | Approved |
|-----------------------------------------|----------------|--------------------------|----------|----------|----------|
| 00                                      | August 2023    | First Draft              | RS       | LW       | LW       |
| 01                                      | August 2023    | Issued for client review | RS       | LW       | LW       |
| 02                                      | September 2023 | Final                    | NS       | LW       | LW       |
| 03                                      |                |                          |          |          |          |
| For and on behalf of Stantec UK Limited |                |                          |          |          |          |

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## EXECUTIVE SUMMARY

This Energy Statement outlines how the Development at Land east of Westergate, Aldingbourne demonstrates energy and sustainability measures in line with national planning policy and supporting Planning Practice Guidance (PPG) and the Arun Local Plan 2011-2031. In line with Policy ECC SP2 '*Energy and climate change mitigation*', this Energy Statement demonstrates that Land east of Westergate will be designed to achieve the following principles of sustainable design and operation:

- Address climate change mitigation by reducing greenhouse gas emissions;
- Use design and layout to promote energy efficiency;
- Use principles of passive design maximise natural ventilation, cooling, and solar gain;
- Achieve at the requirements of Building Regulations Part L (2021);
- Achieve a water consumption of 110 litres per person per day (per Part G of the Building Regulations); and
- Incorporate renewable and low carbon generation on site to meet a minimum 10% of the total predicted energy requirements.

The Development incorporates carbon reduction and energy efficiency measures sufficient to achieve compliance Policy ECC SP2. These include the following:

- High quality materials will be used throughout the Development, creating a pleasant, green, new community;
- The Development will utilise a heat pump led energy strategy where all heating demand is met by low carbon technology enabling an easy transition to Net Zero operation in line with the Future Homes Standard and the UK's trajectory to Net Zero Carbon by 2050;
- Passive design measures such as glazing with solar shading, air permeability, and natural ventilation will be used wherever possible, to prevent overheating and to reduce heat and energy needs;
- Well insulated building fabric including high efficiency Jetfloor ground floor construction and high performance thermal lintels to reduce heat and energy needs; and
- Timber frame construction to reduce embodied carbon.

# 1 INTRODUCTION

## 1.1 Overview

- 1.1.1 This Energy Statement has been prepared on behalf of CALA Homes (South Home Counties) Ltd ('the Applicant') in support of a Hybrid Application comprising:
- Full Planning Application for western section of East/West Link Road with new access, road bridge and associated works; and
  - Outline Planning Application with all matters reserved for up to 400 No. dwellings with access & associated works (the 'Development') on Land east of Westergate, Aldingbourne (the 'Site').
- 1.1.2 The Energy Statement demonstrates how the Development will comply with policies concerning energy efficiency and renewable energy generation under Arun Local Plan 2011-2031.

## 1.2 Policy Context

- 1.2.1 A summary of the key policies relevant to the Energy Statement are outlined below. This policy context includes those at the national level, such as the National Planning Policy Framework (NPPF). The existing Local Plan was approved in July 2018<sup>1</sup>.
- 1.2.2 Arun District Council declared a climate emergency 15 January 2020. The Arun District Carbon Neutral Strategy sets out the Council's vision to become carbon neutral by 2030<sup>2</sup>.

## 1.3 National Context

- 1.3.1 The UK Government has acknowledged that climate change is a threat to our way of life and the natural world. It has also acknowledged that a "green recovery" from the coronavirus pandemic is an opportunity for the UK to boost economic growth, reduce inequality and improve our environment as well as helping to mitigate the effects of climate change. Quantitative targets have been set for reducing greenhouse gas (GHG) emissions in primary legislation, which is summarised below.

### Climate Change Act 2008 and 2019 Amendment (Net Zero)<sup>3</sup>

- 1.3.2 The Climate Change Act (2008) sets a legally binding target for reducing greenhouse gas (GHG) emissions, in particular carbon dioxide (CO<sub>2</sub>), by at least 80% (on 1990 levels) by the year 2050 in the UK, and a requirement that domestic emissions are reduced by no less than 3% each year.
- 1.3.3 In setting these targets, the Act established the Committee for Climate Change (CCC), which is responsible for setting binding interim targets for the Government over five-year periods. In May 2019, the CCC recommend a new emissions target for the UK: a 100% reduction ('net zero') in greenhouse gases by 2050. This change in legislation mandating a 100% reduction in CO<sub>2</sub> emissions by 2050 was approved by the House of Commons on 24th June 2019 and the House of Lords on 26th June 2019.

### National Planning Policy Framework and Planning Practice Guidance<sup>4</sup>

- 1.3.4 The National Planning Policy Framework (NPPF) which was revised in September 2023 requires developments to "take a proactive approach to mitigating and adapting to climate change." Section 14 of the NPPF 'Meeting the challenge of climate change, flooding and coastal change' emphasises the

<sup>1</sup> Arun Local Plan. <https://www.arun.gov.uk/adopted-local-plan/>

<sup>2</sup> Arun District Carbon Neutral Strategy. <https://www.arun.gov.uk/carbon-neutral-strategy>

<sup>3</sup> The Climate Change Act 2008 (2050 Target Amendment) Order 2019. <https://www.legislation.gov.uk/ukdsi/2019/9780111187654>

<sup>4</sup> National Planning Policy Framework. <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

planning system's pivotal role in sustainable development through "minimising vulnerability and improve resilience to the impacts of climate change". Paragraph 153 of the NPPF states:

***"Plans should take a proactive approach to mitigating and adapting to climate change, taking into account the long-term implications for flood risk, coastal change, water supply, biodiversity and landscapes, and the risk of overheating from rising temperatures. Policies should support appropriate measures to ensure the future resilience of communities and infrastructure to climate change impacts, such as providing space for physical protection measures, or making provision for the possible future relocation of vulnerable development and infrastructure."***

1.3.5 National Planning Practice Guidance (PPG) was published in June 2014 and recognises that the planning system can "increase resilience to climate change impact through the location, mix and design of development". The guidance advises how to identify suitable mitigation and adaptation measures in the planning process to address the impacts of climate change.

1.3.6 Paragraph 005 of the PPG puts forwards recommendations for Local Planning Authorities to consider:

- Identifying no or low-cost responses to climate risks that also deliver other benefits, such as green infrastructure that improves adaptation, biodiversity and amenity;
- Building in flexibility to allow future adaptation if it is needed, such as setting back new development from rivers so that it does not make it harder to improve flood defences in the future; and
- The potential vulnerability of a development to climate change risk over its whole lifetime.

#### Local Policy

#### Arun Local Plan 2011-2031<sup>5</sup>

1.3.7 The relevant Arun Local Plan Policy is Policy ECC SP2 'Energy and climate change mitigation'. Policy ECC SP2 requires new developments to be energy efficient and to demonstrate how they will:

- Achieve energy efficiency measures that reflect the current standards applicable at the time of submission;
- Use design and layout to promote energy efficiency; and
- Incorporate decentralised, renewable and low carbon energy supply systems, for example small scale renewable energy systems such as solar panels.

1.3.8 For major developments Policy ECC SP2 sets a requirement to produce 10% of the total predicted energy requirements from renewable or low carbon energy generation on site, unless it can be demonstrated that this is unviable.

1.3.9 The Arun Local Plan defines renewable energy as energy which comes from natural resources such as sunlight, wind, rain, tides and geothermal heat. The energy sources are naturally replenished and do not require the burning of fossil fuels. Although these energy sources may produce a certain level of carbon dioxide e.g.. Wood fuel, levels are much lower than produced when burning fossil fuels. The energy produced is therefore called low carbon energy.

<sup>5</sup> Arun Local Plan 2011-2031. <https://www.arun.gov.uk/adopted-local-plan/>

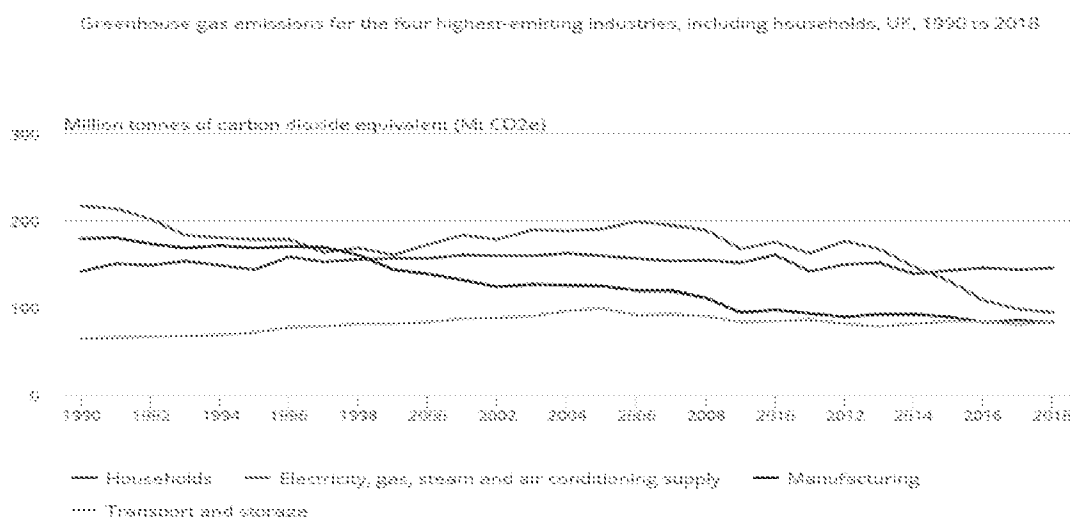
## 1.4 National Emissions Trends and Climate Change Projections

- 1.4.1 The UK Climate Projections 2018 (UKCP18) are based on the latest climate science. They project future temperature change and precipitation for England. By the end of the 21st century, all areas of the UK are projected to be warmer, more so in summer than in winter. Low, central and high changes across the UK are provided. The range of temperature increase is between 2.0 °C to 8.7 degrees C in summer and 0.9 °C to 6.3 °C in winter, by 2099. Key trends can be summarised as hotter, drier summers, warmer wetter winters, and more extreme and frequent precipitation events (storms) in winter.

### Sources of Emissions

- 1.4.2 Emissions have fallen across industry sectors at different rates, as the graph below from the ONS Environmental Accounts (2020) demonstrates, with households contributing the highest proportion of total emissions since 2015. Household emissions includes emissions from domestic travel (i.e., transport by private car etc). Around 46% of greenhouse gas emissions by households in 2018 related to travel, mostly from domestic car use. The transport sector emissions have risen by 30% between 1990 and 2018. Power generation has rapidly decarbonised over the last decade or so, a trend that is set to continue, as discussed below.

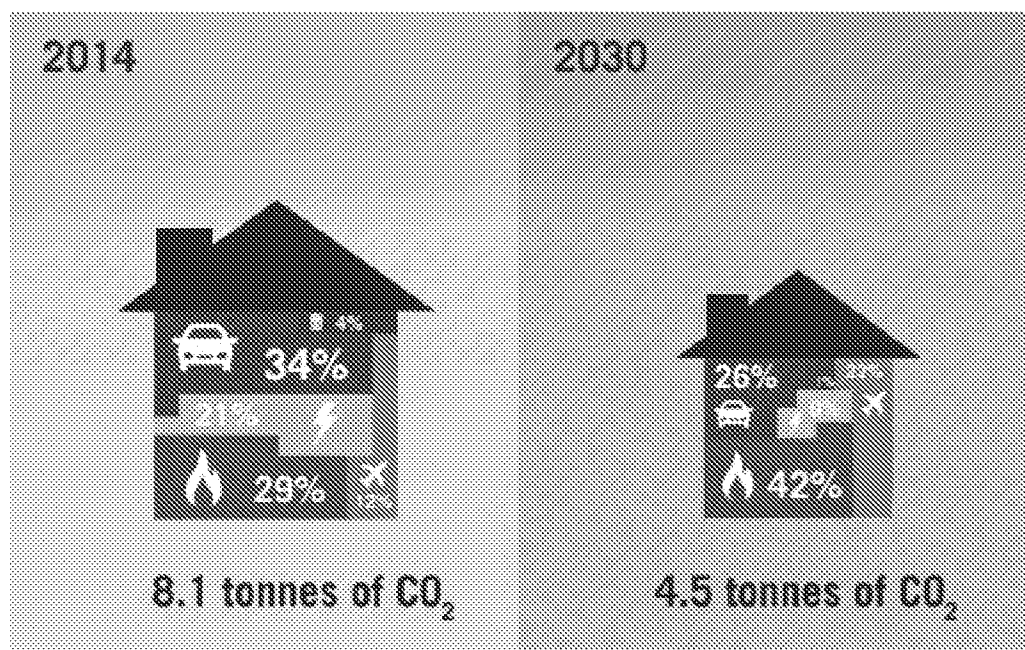
Figure 1.1 - Emissions from Households, Transport, Power generation, Manufacturing and Transport and Storage



Source: Office for National Statistics – UK Environmental Accounts

- 1.4.3 The Committee on Climate Change's (CCC) Fifth Carbon Budget covers the years 2028-2032 and provides an infographic which demonstrates the breakdown of emissions for households in 2014 and 2030 with the total average carbon footprint (as shown below). The emissions sources are heating, electricity, transport, waste and aviation. This is important to setting the objectives for the energy and climate change strategy as tackling these areas will have the most impact in climate change mitigation at Land West of Reigate Road. The CCC's Sixth Carbon Budget (December 2020), supports this infographic and states that 34% of UK emissions occur directly from households – predominantly through driving of cars and the heating of homes. Naturally, there is some year-on-year variation within the specific contributors to climate change, particularly owing to Covid-19, but these figures from the CCC remain a robust baseline to frame the routes to minimising household emissions.

Figure 1.2 - Household Carbon Footprint



Source: Committee on Climate Change: The Fifth Carbon Budget – How every household can help reduce the UK's carbon footprint (but principles are supported by the Sixth Carbon Budget)

#### Local emissions rates<sup>8</sup>

- 1.4.4 Overall, the carbon emissions for each industry sector have steadily declined in Arun between 2005 and 2020 with a slight increase in 2021. This can be seen in Table 2.3 showing that the emissions produced in all Industrial, Commercial, Domestic and Transport sectors which show an overall trend of decline over the 16-year period.
- 1.4.5 When taking into account the population each year (mid-year estimates) and the Grand Total GHG emissions, the per capita emissions have also decreased each year in the over the 16-year period.

Table 1.1 - GHG Emissions within Arun 2005-2021

| Year | Industry Total (kt CO <sub>2</sub> ) | Commercial Total (kt CO <sub>2</sub> ) | Domestic Total (kt CO <sub>2</sub> ) | Transport Total (kt CO <sub>2</sub> ) | Grand Total (kt CO <sub>2</sub> ) | Population ('000s, mid-year estimate) | Per Capita Emissions (t) |
|------|--------------------------------------|----------------------------------------|--------------------------------------|---------------------------------------|-----------------------------------|---------------------------------------|--------------------------|
| 2005 | 72.9                                 | 128.3                                  | 386.2                                | 240.6                                 | 993.3                             | 146.0                                 | 6.8                      |
| 2006 | 70.4                                 | 125.3                                  | 386.0                                | 239.5                                 | 974.3                             | 146.8                                 | 6.6                      |
| 2007 | 67.4                                 | 118.0                                  | 371.2                                | 238.6                                 | 939.7                             | 147.7                                 | 6.4                      |
| 2008 | 61.5                                 | 117.3                                  | 371.2                                | 228.2                                 | 909.1                             | 148.5                                 | 6.1                      |
| 2009 | 56.7                                 | 103.1                                  | 338.2                                | 218.6                                 | 820.1                             | 148.9                                 | 5.5                      |
| 2010 | 64.5                                 | 111.3                                  | 365.4                                | 215.9                                 | 891.5                             | 149.5                                 | 6.0                      |
| 2011 | 56.7                                 | 96.6                                   | 319.6                                | 212.5                                 | 792.5                             | 149.8                                 | 5.3                      |
| 2012 | 62.1                                 | 112.2                                  | 345.8                                | 209.6                                 | 831.4                             | 151.8                                 | 5.5                      |
| 2013 | 59.0                                 | 105.3                                  | 335.9                                | 207.2                                 | 802.7                             | 153.4                                 | 5.2                      |
| 2014 | 54.3                                 | 88.1                                   | 286.5                                | 208.9                                 | 735.3                             | 155.3                                 | 4.7                      |

<sup>8</sup> UK local authority and regional greenhouse gas emissions national statistics. Link

<https://www.gov.uk/government/collections/uk-local-authority-and-regional-greenhouse-gas-emissions-national-statistics>

| Year | Industry<br>Total<br>(kt CO <sub>2</sub> ) | Commercial<br>Total<br>(kt CO <sub>2</sub> ) | Domestic<br>Total<br>(kt CO <sub>2</sub> ) | Transport<br>Total<br>(kt CO <sub>2</sub> ) | Grand<br>Total<br>(kt CO <sub>2</sub> ) | Population<br>(‘000s,<br>mid-year<br>estimate) | Per Capita<br>Emissions<br>(t) |
|------|--------------------------------------------|----------------------------------------------|--------------------------------------------|---------------------------------------------|-----------------------------------------|------------------------------------------------|--------------------------------|
| 2015 | 49.6                                       | 74.3                                         | 276.0                                      | 212.4                                       | 702.7                                   | 157.0                                          | 4.5                            |
| 2016 | 48.6                                       | 64.7                                         | 265.8                                      | 225.4                                       | 661.1                                   | 159.3                                          | 4.2                            |
| 2017 | 49.3                                       | 63.0                                         | 249.5                                      | 227.0                                       | 648.0                                   | 161.0                                          | 4.0                            |
| 2018 | 58.8                                       | 33.3                                         | 242.5                                      | 220.2                                       | 617.9                                   | 162.4                                          | 3.8                            |
| 2019 | 53.0                                       | 29.8                                         | 230.9                                      | 214.1                                       | 588.9                                   | 163.4                                          | 3.6                            |
| 2020 | 56.0                                       | 23.0                                         | 228.4                                      | 176.0                                       | 540.8                                   | 164.2                                          | 3.3                            |
| 2021 | 68.3                                       | 26.5                                         | 233.1                                      | 184.6                                       | 564.8                                   | 165.2                                          | 3.4                            |

## 2 METHODOLOGY

### 2.1 Outline Energy Strategy

2.1.1 The Energy Strategy in Section 3 has been prepared based on SAP 10.2 methodology<sup>7</sup> to estimate the regulated energy demand and associated carbon emissions for a typical notional dwelling.

2.1.2 The methodology and information sources that have informed this report are outlined in Table 3.1.

Table 2.1 – Methodology and information sources

| Information                       | Source                                                                                                        |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------|
| Geometry                          | Based on a notional dwelling design of appropriate typology                                                   |
| Building Specification            | Based on a notional dwelling design to meet Part L 2021                                                       |
| Regulated Calculation Methodology | The Government's Standard Assessment Procedure for Energy Rating of Dwellings (SAP) Version 10.2 <sup>7</sup> |
| Software Used                     | Elmhurst Energy SAP 10 Version 2.7.1                                                                          |

2.1.3 The purpose of the Energy Strategy is to demonstrate compliance. The approved methodologies prescribe design parameters for inputs such as occupancy, weather, internal temperatures, and equipment usage. Therefore, any calculations presented in this energy assessment should not be taken as a prediction of expected energy consumption or CO<sub>2</sub> emissions.

<sup>7</sup> Government's Standard Assessment Procedure for Energy Rating of Dwellings (SAP) 10.2 methodology - [SAP10 - Standard Assessment Procedure - BRE Group](#)

### 3 OUTLINE ENERGY STRATEGY

#### 3.1 Introduction

- 3.1.1 This Energy Strategy has been prepared for submission as part of an outline planning application for the Development to demonstrate how principles concerning energy efficiency, energy consumption and renewable technology will be incorporated. The relevant Building Regulations and planning policies applicable to the Development are summarised in Table 4.1.

Table 3.1 - Planning policy & legislation applicable to energy at the Development

| Planning Policy/Legislation                                      | Requirements/Targets                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| The Climate Change Act 2008 (2050 Target Amendment) Order 2019   | UK targeting to reduce carbon emissions to net zero by 2050.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| UK Net Zero Strategy <sup>8</sup>                                | Future Homes Standard. <sup>9</sup> (FHS), expected in 2025, will require all new homes to be Net Zero Carbon Ready.                                                                                                                                                                                                                                                                                                                                                                                                    |
| Building Regulations Approved Document Part L 2021 <sup>10</sup> | <p>Part L 2021 came into effect on 15<sup>th</sup> June 2022 and requires a 31% reduction in CO<sub>2</sub> emissions compared to Part L 2013.</p> <p>Part L 2021 encourages fabric first principles, the selection of efficient energy sources/fuels, and the reduction of regulated carbon emissions by the following targets:</p> <p>Target Emission Rate (kg CO<sub>2</sub>/m<sup>2</sup>);<br/>Target Fabric Energy Efficiency (kWh/m<sup>2</sup>); and<br/>Target Primary Energy (kWh/m<sup>2</sup>).</p>         |
| Arun Local Plan 2011-2031                                        | <p>Policy ECC SP2: Energy and climate change mitigation</p> <p>Aims to deliver energy efficiency, reduce greenhouse gas emissions and promote renewable energy sources in developments.</p> <p>Major new developments must:</p> <p>Achieve energy efficiency measures that reflect the current building regulation standards;<br/>Use design and layout to promote energy efficiency; and<br/>Incorporate renewable or low carbon energy generation on site to meet 10% of the total predicted energy requirements.</p> |

<sup>8</sup> Department for Business, Energy and Industrial Strategy. 2022. Build Back Greener: Net Zero Strategy. <https://www.gov.uk/government/publications/net-zero-strategy>

<sup>9</sup> Future Homes Standard Consultation - [The Future Homes Standard: 2019 Consultation \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/consultations/the-future-homes-standard)

<sup>10</sup> Building Regulations Approved Document Part L 2021 edition - [Approved Document L: Conservation of fuel and power, Volume 1: Dwellings \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/consultations/approved-document-l-conservation-of-fuel-and-power)

- 3.1.2 The outline portion of the hybrid planning application is made for the construction of up to 400 homes, comprising a mix of affordable and private houses and apartments. The proposed unit mix is shown in Figure 3.1 and the site layout is shown in Appendix B.

Figure 3.1 - Outline Unit Mix

| PRIVATE House Type         | No of Bedrooms | SqFt (GIA) | No  | Total SqFt |
|----------------------------|----------------|------------|-----|------------|
| 1B FOG                     | 1              | 538        | 1   | 538        |
| 1B Maisonette Ground Floor | 1              | 538        | 4   | 2152       |
| 1B2P Flat                  | 1              | 550        | 8   | 4400       |
| 1B Maisonette First Floor  | 1              | 659        | 4   | 2636       |
| 2B4P FOG                   | 2              | 770        | 1   | 770        |
| 2B4P Flat                  | 2              | 800        | 27  | 21600      |
| Bayberry M4(2)             | 2              | 864        | 35  | 30240      |
| Beech + study              | 2              | 876        | 59  | 51684      |
| Blackthorne + GR M4(2)     | 2              | 1047       | 14  | 14658      |
| Burdock                    | 3              | 1046       | 12  | 12552      |
| Dandelion M4(2)            | 3              | 1155       | 42  | 48510      |
| Fennel M4(2)               | 3              | 1179       | 11  | 12969      |
| Fern                       | 3              | 1250       | 47  | 58750      |
| Lancewood                  | 3              | 1296       | 20  | 25920      |
| Keriberry                  | 4              | 1273       | 9   | 11457      |
| Orpine M4(2)               | 4              | 1404       | 12  | 16848      |
| Maple                      | 4              | 1415       | 15  | 21225      |
| Magnolia                   | 4              | 1442       | 10  | 14420      |
| Rockrose                   | 4              | 1553       | 9   | 13977      |
| <b>TOTALS</b>              |                |            | 340 | 365306     |

| AFFORDABLE House Type | No of Bedrooms / Persons | SqFt (GIA) | No | Total SqFt |
|-----------------------|--------------------------|------------|----|------------|
| 1B FOG                | 1                        | 538        | 2  | 1076       |
| 1B Flat               | 1                        | 538        | 7  | 3766       |
| 1B Flat M4(3)         | 1                        | 753        | 14 | 10542      |
| 2B3P Flat             | 2                        | 657        | 2  | 1314       |
| 2B4P Flat             | 2                        | 753        | 17 | 12801      |
| 2B FOG                | 2                        | 753        | 1  | 753        |
| Bellflower M4(2)      | 2                        | 864        | 4  | 3456       |
| Erica M4(2)           | 3                        | 1114       | 9  | 10026      |
| Heather M4(2)         | 4                        | 1267       | 4  | 5068       |
| <b>TOTALS</b>         |                          |            | 60 | 48802      |

|                    |     |        |
|--------------------|-----|--------|
| <b>SITE TOTALS</b> | 400 | 414108 |
|--------------------|-----|--------|

### Energy Demand Reduction

3.1.3 Demand reduction is typically a more cost-effective means of achieving carbon savings than providing low or zero carbon technologies. This is particularly true of passive measures (the architecture), which are simpler and have greater longevity than active systems (the building services).

3.1.4 The following energy efficiency measures will be incorporated in the Development:

- Highly insulated building fabric with external walls, floors and roofs of low U-Values to reduce heat loss;
- Efficient double or triple glazed windows;
- Use of natural ventilation where feasible to reduce energy demands;
- Where feasible dwellings have been designed to allow for cross-ventilation to reduce the risk of overheating and help them stay cool in warmer conditions;
- Low energy lighting; and
- Strong continuity of insulation at building junctions to reduce thermal bridging heat loss including high efficiency insulated lintels.

### Renewable Energy and Low Carbon Technology

3.1.5 Following the incorporation of energy demand reduction measures, a high-level feasibility study has been carried out to assess potentially viable sources of low carbon technology and renewable energy.

Table 3.2 - Feasibility of low carbon and renewable technologies

| Technology               | Appropriate | Comments                                                                                                                                                                                                                                                                                                              |
|--------------------------|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Photovoltaic (PV) panels | Yes         | There is expected to be suitable roof space to accommodate PV to buildings with South facing roofs.                                                                                                                                                                                                                   |
| Heat Recovery            | Yes         | Heat recovery technology would be appropriate to incorporate into new buildings and can be considered on either the ventilation or wastewater systems.                                                                                                                                                                |
| Heat Pump                | Yes         | Heat pumps are a suitable technology to meet the hot water and heating demand of new homes and are an appropriate technology to meet the Future Homes Standard.                                                                                                                                                       |
| Battery Storage          | Potential   | Battery storage at building level could reduce peak electrical demands. Domestic battery storage technology is currently expensive, but this is likely to decrease over the next five to ten years.<br><br>Further investigation at design stage is required to confirm whether this technology would be appropriate. |
| Solar Thermal            | Potential   | There is expected to be roof space available to provide solar thermal technology, however it is considered more appropriate to provide PV instead of solar thermal to meet electricity demand as this is more beneficial to support both EV charging and any heat pumps.                                              |
| Wind                     | No          | Building-integrated wind turbines and wind turbines sited in urban areas perform poorly due to unfavourable wind microclimate.                                                                                                                                                                                        |
| Biomass                  | No          | Unlikely to comply with the Future Homes Standard and there may be concerns regarding the delivery of biomass fuel to the residents.                                                                                                                                                                                  |

- 3.1.6 The Development will seek to supply energy efficiently by designing for the use of only electric based heating and hot water systems meaning that the Development will be designed to be fossil fuel-free.
- 3.1.7 Dwelling heat and hot water demand will be met by low carbon technology using air source heat pumps (ASHP) as individual heating systems.
- 3.1.8 ASHPs extract heat from the external air and condense this energy to heat a smaller space within a dwelling or non-domestic building. A pump circulates a refrigerant through a coil to absorb energy from the air. This refrigerant is then compressed to raise its temperature which can then be used for space heating and domestic hot water. They can feed either low- temperature radiators or underfloor heating and often have electric immersion heater back-up for the winter months.
- 3.1.9 Due to their high efficiency and extraction of energy from the ambient environment, ASHPs can be considered as renewable or low carbon technology in line with Policy ECC SP2
- 3.1.10 The Future Homes Standard<sup>11</sup> (FHS) has been considered when specifying ASHP, as the FHS anticipates that heat pumps will become the primary heating technology for new homes as the electrification of domestic heating supply provides a route to net zero homes once the electricity grid is decarbonised.
- 3.1.11 As ASHPs are specified instead of traditional gas boiler heating systems the dwellings will track improvements in the UK electricity grid emissions in line with the government's commitment to fully decarbonise UK electricity by 2035<sup>12</sup>.
- 3.1.12 PV panels would be a suitable renewable technology for the Development, and the potential to incorporate PV technology will be considered as the design progresses, particularly at the point which the FHS is launched and Part L 2021 is superseded.
- 3.1.13 Due to the energy efficiency measures specified, additional renewable generation isn't required to meet Part L 2021, or to achieve compliance with Policy ECC SP2 of the Arun Local Plan. Summary of the predicted performance of the Development under Part L 2021 is shown in Appendix C.
- 3.1.14 The ASHP-led electric only energy strategy proposed would allow the Development to achieve full Net Zero operation once the grid decarbonises.

<sup>11</sup> The Future Homes Standard (FHS) targets the delivery of new "zero carbon ready" building standards in 2025, this standard is defined as one that enables buildings to become zero carbon without the need for retrofit once the power grid achieves zero carbon supply in 2035. [The Future Homes Standard: changes to Part L and Part F of the Building Regulations for new dwellings - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/the-future-homes-standard-changes-to-part-l-and-part-f-of-the-building-regulations-for-new-dwellings)

<sup>12</sup> Department for BEIS press release - [Plans unveiled to decarbonise UK power system by 2035 - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/news/plans-unveiled-to-decarbonise-uk-power-system-by-2035)

## 4 CONCLUSION

4.1.1 This Energy Statement outlines how the Development complies with Arun Local Plan Policy ECC SP2 '*Energy and climate change mitigation*'. In accordance with Policy ECC SP2, this statement details the energy efficiency measures and renewable technology incorporated into the Development.

4.1.2 The Development incorporates energy efficiency measures including the following:

- Highly insulated building fabric with external walls, floors and roofs of low U-Values to reduce heat loss;
- Efficient double or triple glazed windows;
- Use of natural ventilation where feasible to reduce energy demands;
- Where feasible dwellings have been designed to allow for cross-ventilation to reduce the risk of overheating and help them stay cool in warmer conditions;
- Low energy lighting; and
- Strong continuity of insulation at building junctions to reduce thermal bridging heat loss including high efficiency insulated lintels.

4.1.3 The outline energy strategy for the Development proposes to meet all residential heating and hot water demand using Air Source Heat Pump. This electric only strategy will allow the Development to achieve net zero emissions in operation once the mains grid decarbonises.

4.1.4 The Development will meet the requirements of ECC SP2 as it will achieve the following:

- The Development will meet nationally prescribed Building Regulations Approved Document Part L 2021;
- More than 10% of the Development's total predicted energy requirements will be met by renewable or low carbon technology; and
- The FHS has been considered in the development of the Energy Strategy including the specification of ASHPs, which ensures the development is in accordance with the national path to low carbon buildings.

4.1.5 The performance of the proposed energy strategy will be verified by the production of a detailed Energy Statement with the Reserved Matters Applications. This will include calculations of energy performance and carbon emissions of a sample of proposed dwellings to demonstrate compliance with the latest Part L Building Regulations and Policy ECC SP2.

## Appendix A Policy and Legislative Context

### Introduction

This appendix of the Energy Statement provides an overview of the policy and legislative context in respect of Land east of Westergate, Aldingbourne.

### Policy Context

#### National Planning Policy Framework<sup>13</sup>

The revised NPPF published in September 2023 identifies the key principles in relation to health that local planning authorities should consider. In particular Chapter 8 of the revised NPPF 'Promoting healthy and safe communities' states that decisions should aim to achieve the following key features to a healthy and safe community:

1. *"promote social interaction, including opportunities for meetings between people who might not otherwise come into contact with each other – for example through mixed-use development, strong neighbourhood centre, street layouts that allow for easy pedestrian and cycle connections within and between neighbourhoods, and active street frontages;*
2. *are safe and accessible, so that crime and disorder, and the fear of crime, do not undermine the quality of life or community cohesion – for example through the use of clear and legible pedestrian routes, and high quality public space, which encourage the active and continual use of public areas; and*
3. *enable and support healthy lifestyles, especially where this would address identified local health and well-being needs – for example through the provision of safe and accessible green infrastructure, sports facilities, local shops, access to healthier food, allotments and layouts that encourage walking and cycling."*

The revised NPPF also includes other chapters relevant to the Strategy that are appropriately referenced in the report.

#### The Clean Growth Strategy<sup>14</sup>

In October 2017, the UK Government published its Clean Growth Strategy (CGS) setting out ambitious policies and proposals, through to 2032 and beyond, to reduce emissions across the economy and promote clean growth. The CGS provides an 'ambitious' blueprint for Britain's low carbon future, outlining how investment in green energy goes hand-in-hand with economic growth and industrial, commercial and residential strategies. Core to the strategy are actions that will cut emissions, increase efficiency and lower the amount consumers and business spent on energy. The CGS sets out actions for the six key areas that together are responsible for 100% of the UK's carbon emissions. These are:

- Improving business and industry efficiency (25% of UK emissions): Improving business and industry efficiency, improving energy productivity and commercial building standards, delivering industrial energy efficiency, investing in industrial innovation;
- Accelerating the shift to low-carbon transport (24% of UK emissions): Accelerating the shift to low – carbon transport, supporting the take – up of ultra – low emission vehicles, developing electric vehicle charging network, shifting freight from road to rail and innovation in Connected and Autonomous Vehicles and electric batteries;

<sup>13</sup> National Planning Policy Framework, July 2021. Link <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

<sup>14</sup> Clean Growth Strategy, October 2017. Link <https://www.gov.uk/government/publications/clean-growth-strategy>

- Improving our homes (13% of UK emissions): Improving our homes, upgrading energy efficiency across a million homes, strengthening building standards, rolling out heat networks, phasing out of high carbon heating;
- Enhancing the benefits and value of our natural resources (15% of UK emissions): Enhancing the benefits and value of our natural resources, supporting agriculture, a new network of forests, zero avoidable waste by 2050, managing emissions from landfill;
- Leading the public sector (2% of UK emissions): Leading in the public sector, setting a voluntary 30 percent public sector carbon reduction target by 2020 and funding for energy efficiency improvements in England; and
- Delivering clean, smart, flexible power (21% of UK emissions): Delivering clean, smart, flexible power, phasing – out of coal, developing new ways of balancing the grid through electricity storage and demand response.

## 25 Year Environment Plan<sup>15</sup> and the Environment Act<sup>16</sup>

Building on the proposals set out in the CGS, the UK outlined its plans to improve the environment in 'A Green Future: Our 25 Year Plan to Improve the Environment' (2018). The 25 Year Environment Plan was published in January 2018 and sets out the UK's approach to deliver on our ambition to leave our environment in a better state than we inherited, and to fully seize the opportunities of clean growth. At a glance, the key proponents of the 25 Year Plan are:

- Embedding an 'environment net gain' principle for development, including housing and infrastructure: reforming developer contributions and tariffs to limit environmental damage and secure investment in natural capital.
- Clean Air: meeting legally binding targets to reduce emissions of five damaging air pollutants; this should halve the effects of air pollution on health by 2030 and maintaining the continuous improvement in industrial emissions by building on existing good practice and the successful regulatory framework.
- Reducing the risks of harm from environmental hazards: We will reduce the risk of harm to people, the environment and the economy from natural hazards including flooding, drought and coastal erosion.
- Increasing resource efficiency and reducing pollution and waste: achieving zero avoidable waste by 2050 and eliminating avoidable plastic waste by 2042 and reducing food chain emissions and wastage as well as improving the management of residual waste.
- Using resources from nature more sustainably and efficiently: ensure that resources from nature, such as timber, are used more sustainably and efficiently.
- Enhancing beauty, heritage and engagement with the natural environment: making sure that there are high quality, accessible, natural spaces close to where people live and work, particularly in urban areas, and encouraging more people to spend time in them to benefit their health and wellbeing.
- Mitigating and adapting to climate change: Take all possible action to mitigate climate change, while adapting to reduce its impact.

The Environment Act became law in 2021 and sets long-term targets in respect of any matter which relates to:

- The natural environment, or
- People's enjoyment of the natural environment.

The priority areas within the Act are:

- Air quality;
- Water;
- Biodiversity; and

<sup>15</sup> 25 Year Environment Plan, last updated October 2021. Link <https://www.gov.uk/government/publications/25-year-environment-plan>

<sup>16</sup> Environment Act 2021. Link <https://www.legislation.gov.uk/ukpga/2021/30/contents/enacted>

- Resource efficiency and waste reduction.

#### Planning Practice Guidance<sup>17</sup>

The PPG on climate change (Paragraph 007) also recognises that every area will have different challenges and opportunities for reducing carbon emissions from new development such as homes, businesses, energy, transport and agricultural related development:

- Robust evaluation of future emissions will require consideration of different emission sources, likely trends taking into account requirements set in national legislation, and a range of development scenarios;
- The distribution of new development and the potential for servicing sites through sustainable transport solutions, are particularly important considerations that affect transport emissions; and
- Different sectors may have different options for mitigation. For example, measures for reducing emissions in agricultural related development include anaerobic digestion, improve slurry and manure storage and improvements to buildings. In more energy intensive sectors, energy efficiency and generation of renewable energy can make a significant contribution to emissions reduction.

Further detailed guidance is also provided with regards to specific considerations for climate change. For example, the PPG companion document to the NPPF sets out the required approach to climate change for the assessment of flood risk. It provides recommendations for sensitivity ranges and allowances for future increases in rainfall, sea levels, river flows and tidal effects such as wind speed and wave height. For example, paragraphs 155 and 156 of the NPPF state:

*“Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk (whether existing or future). Where development is necessary in such areas, the development should be made safe for its lifetime without increasing flood risk elsewhere. Strategic policies should be informed by a strategic flood risk assessment and should manage flood risk from all sources. They should consider cumulative impacts in, or affecting, local areas susceptible to flooding, and take account of advice from the Environment Agency and other relevant flood risk management authorities, such as lead local flood authorities and internal drainage boards.”*

#### Local Planning Policy

##### Arun Local Plan Policy

##### Policy ECC SP2 Energy and climate change mitigation

All new residential and commercial development (including conversions, extensions and changes of use) will be expected to be energy efficient and to demonstrate how they will:

- a. Achieve energy efficiency measures that reflect the current standards applicable at the time of submission;
- b. Use design and layout to promote energy efficiency; and
- c. Incorporate decentralised, renewable and low carbon energy supply systems, for example small scale renewable energy systems such as solar panels.

All major developments must produce 10% of the total predicted energy requirements from renewable or low carbon energy generation on site, unless it can be demonstrated that this

<sup>17</sup> National Planning Policy Framework. <https://www.gov.uk/government/publications/national-planning-policy-framework--2>

is unviable. Energy efficiency measures will be taken into consideration when the total predicted energy requirements are calculated.

The Council will consider 'allowable solutions' where it is clearly demonstrated that the provision of on site renewable or low carbon energy generation is unviable or not feasible. Where planning permission is required to retrofit energy efficiency measures into existing development, schemes will be permitted, subject to the Design and Built Heritage policies. In assessing the achievement of these standards the Council will consider:

- Site constraints;
- Technical viability;
- Financial viability; and
- Delivery of additional benefits.

[illegible]

## Appendix C      Part L 2021 Compliance

Predicted regulated operational emissions show the Development will achieve compliance with Part L 2021.

| Annual Performance Measure                               |                                                                 | Target    | Actual    | % Reduction |
|----------------------------------------------------------|-----------------------------------------------------------------|-----------|-----------|-------------|
| Part L 2021                                              | CO <sub>2</sub> emissions (kg CO <sub>2</sub> /m <sup>2</sup> ) | 12.2      | 3.7       | 70%         |
|                                                          | Fabric Energy Efficiency (kWh/m <sup>2</sup> )                  | 39.9      | 35.6      | 11%         |
|                                                          | Primary Energy (kWh/m <sup>2</sup> )                            | 63.9      | 36.7      | 43%         |
| Total Development Carbon emissions (kg CO <sub>2</sub> ) |                                                                 | 468,742.5 | 140,861.1 | 70%         |