

Appendix C – Site Wide Energy Strategy

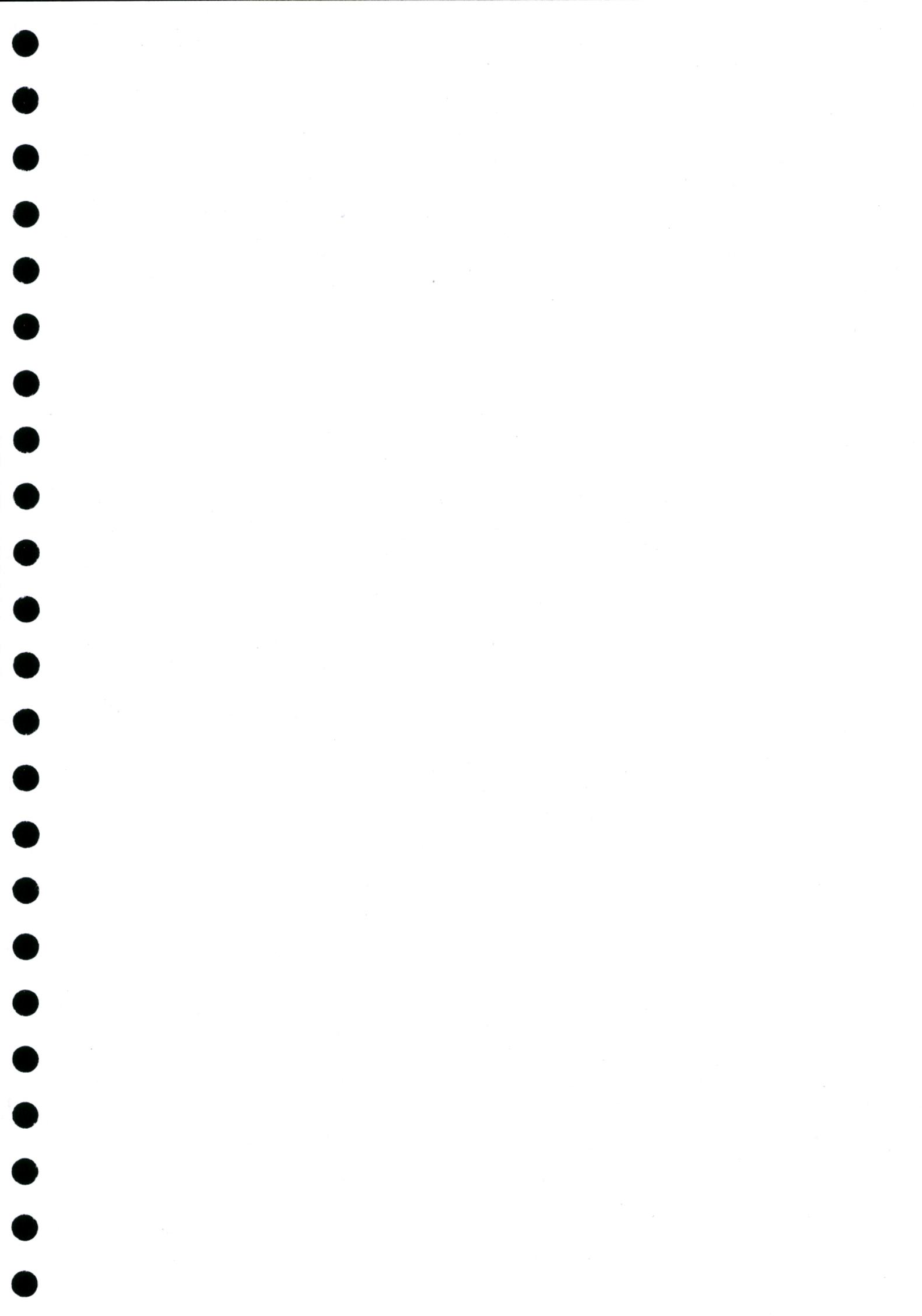


Aylesbury Estate Masterplan

S106 Ref: LEG/RP/PL/S106/63752
Application Refs: 14-AP-3843 & 14-AP-3844

Site Wide Energy Strategy

Submitted pursuant to Schedule 3, Clause 18.1 of the
above Section 106 Agreement



PROJECT N° 50600304

AYLESBURY DEVELOPMENT

S106 – ENERGY RESPONSES

MAY 2015

AYLESBURY DEVELOPMENT

S106 – ENERGY RESPONSES

Notting Hill Housing

Confidential

Project no: 50600304
Date: May 2015

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QUALITY MANAGEMENT

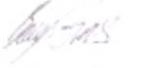
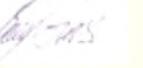
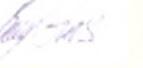
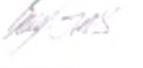
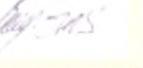
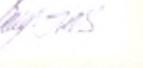
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PURPOSE OF DOCUMENT

1.1

AYLESBURY ESTATE PLANNING PERMISSION

On 5th of August 2015, the London Borough of Southwark granted Planning Permission for the redevelopment of the Aylesbury Estate.

The comprehensive redevelopment of the estate comprises of two planning permissions as follows:

Full planning permission (14-AP-3843) for:

Demolition of existing buildings and redevelopment to provide a mixed use development comprising a number of buildings ranging between 2 to 20 storeys in height (9.45m – 72.2m AOD), providing 830 residential dwellings (Class C3); flexible community use, early years facility (Class D1) or gym (Class D2); public and private open space; formation of new accesses and alterations to existing accesses; energy centre; gas pressure reduction station; associated car and cycle parking and associated works.

Outline planning permission (14-AP-3844) for:

Outline application, including access, for demolition of existing buildings and redevelopment to provide up to 2,745 private and affordable units (Use Class C3); 600 sqm to 2,500 sqm of employment use (Use Class B1); 200 sqm to 500 sqm of retail space (Use Class A1); 3,100 to 4,750 sqm of community use, medical centre and early years facility (Use Class D1); 600 sqm to 3,000 sqm flexible retail use (Use Class A1/A3/A4) or workspace use (B1); new landscaping; public and private open space; energy centre; gas pressure reduction station; up to 1,098 car parking spaces; cycle parking; landscaping; and associated works.

1.2

SECTION 106 OBLIGATIONS – SITE WIDE STRATEGIES

Section 106 Obligations – Site Wide Strategies

The two planning permissions were granted consent subject to a S106 Agreement for both planning permissions (ref: LEG/RP/PL/S106/63752). The S106 Agreement requires the submission of a range of site wide strategies in relation to the outline planning permission. These strategies are as follows:

- Housing Delivery Strategy
- Site Wide Children's Play Provision Strategy
- Site Wide Tree Strategy
- Site Wide Energy Strategy
- Pedestrian and Cycle Delivery Plan

These strategies will provide further detail to the information submitted as part of the planning application. They will provide detail of the design of the Development Stages and subsequent Reserved Matters Applications which will be brought forward to deliver the outline planning permission. They will establish the principles and objectives that will be applied in each stage of the scheme.

In some cases the strategies will be updated prior to the submission of each Reserved Matters Application to assess how the specifics of the application will contribute to the objectives and principles of the strategies.

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INTRODUCTION

This report seeks to provide a response for several questions raised during the planning submission of the new Aylesbury Development. Namely the following:

Obligation 18.1 - Briefing note explaining how the Outline development will meet Carbon targets, in particular heat delivery

- a. Explanation on latest of how development will achieve CO₂ emission reductions and renewable energy targets
- b. Programme of construction for energy centre – To include indicative location and connection to wider network
- c. Details of the proposed heat network and related infrastructure necessary to connect each Development Stage, and the anticipated programme for the delivery of such infrastructure including its connection to an operational Energy Centre
- d. Carbon reduction targets and renewable energy targets for each Development Stage, taking account of the programme for the delivery of the Energy Centre in Development Stage 2(b)
- e. Proposals for how the temporary energy solutions implemented in respect of each Development Stage or part thereof that is Completed or Occupied prior to Practical Completion of the Energy Centre could be terminated and how each Development Stage or part thereof will be connected to the heat network once the Energy Centre is operational
- f. Confirmation that the development of new heating network will not affect existing system – **Addressed in a separate document**
- g. Details of how CO₂ emission targets could be offset if not achieved
- h. Details of how the progress towards the attainment of the Agreed Carbon Reduction Targets will be reported to the Council – **Template provided as a separate document**

Section 106 Definitions

"Site Wide Energy Strategy" - A document to be prepared by the Developer and approved by the Council containing details of the overarching strategy for energy heat delivery to the Development which shall demonstrate the delivery of the Agreed Carbon Reduction Targets and Agreed Renewable Energy Targets in accordance with the principle of the Energy Assessment and District Heating Study (version 2), February 2015 and which shall include:

- (a) Proposals for how the Outline Development will achieve the Agreed Carbon Reduction Targets and Agreed on-site Renewable Energy Targets in accordance with the principles set out in the Energy Assessment and District Heating Study – Version 2 dated February 2015.
- (b) A programme for the construction of the Energy Centre in Development Stage 2b
- (c) Details of the proposed heat network and related infrastructure necessary to connect each Development Stage, and the anticipated programme for the delivery of such infrastructure including its connection to an operational Energy Centre
- (d) Carbon reduction targets and renewable energy targets for each Development Stage, taking account of the programme for the delivery of the Energy Centre in Development Stage 2(b)
- (e) Proposals for how the temporary energy solutions implemented in respect of each Development Stage or part thereof that is Completed or Occupied prior to Practical Completion of the Energy Centre could be terminated and how each Development Stage or part thereof will be connected to the heat network once the Energy Centre is operational

(f) Confirmation that the Developer will not impede the continuation of heat supply by the Council for existing occupiers currently served by the existing central community heating network on the Aylesbury Estate

(g) Details of how the Agreed Carbon Reduction Targets could be off-set if targets are not achieved

(h) Details of how the progress towards the attainment of the Agreed Carbon Reduction Targets will be reported to the Council"

The following section 106 definitions are also relevant:

- "Agreed Carbon Reduction Targets"
- "Agreed Renewable Energy Targets"
- "Development Stage"
- "Energy Centre"
- "Development Stage 2b Key Infrastructure Works"
- "Practical Completion"
- "Aylesbury Estate"

A full description of the above can be found within Appendix A

3 RESPONSES

3.1 RESPONSE TO (A) / (B) / (D)

The First Development Scheme (FDS) will be served by a single CHP led energy centre. This will be connected to a District Heating Network (DHN) serving all the buildings within this first stage. The energy centre (EC1) for the FDS is shown in picture in Figure 1 and is estimated to be rated at 500kWe. It is recommended for the FDS DHN to be made connection ready to allow for connection to later phases of development.

The second energy centre (EC2) will be rated at approximately 2.5MW (gas boilers and CHP units) and sized to meet the remaining thermal load. This energy centre is expected to function from the completion of Development Stage 2, 2023, with plant capacity increasing in line with demand as new phases are developed, with the CHP unit(s) functioning as soon as thermal demand is sufficient. Temporary gas boilers will be required to serve phases 2a, 2b and 3 until the second energy centre



comes online.

Locations of the two proposed energy centres are shown in the diagram below.

Figure 1 - Location of Energy Centres

Following the completion of the final stage the two district heating networks are expected to be joined at some point along Portland Street. This would result in a single site wide district heating network served by two energy centres. This is subject to relevant engineering and efficiency analysis likely present following completion of the final stage around 2034.

The remaining level of CO₂ emissions reduction required in order to adhere to the 35% London Plan target will be achieved by implementing photovoltaic panels on unshaded roofs within development. It is expected that the total level of photovoltaic panels deployable across both application sites is estimated at 2,664m².

Table 1 and Table 2 below outline how the site is proposed to reach its carbon targets over the first development site and across the entire Masterplan area



Figure 2 - FDS DHN Proposed Route

	Regulated Carbon Dioxide savings	
	(Tonnes CO ₂ per annum)	(%)
Savings from energy demand reduction	50	3.44
Savings from CHP	452	32.03
Savings from renewable energy	36	3.72
Total cumulative savings	537	36.81
Total Target Savings	511.11	35%
Annual Surplus	26.4	1.81%

Table 1 - FDS Carbon Reduction Targets

Regulated Carbon Dioxide savings

	(Tonnes CO ₂ per annum)	(%)
Savings from energy demand reduction	248	4.57
Savings from CHP	1,539	29.77
Savings from renewable energy	136	3.7
Total cumulative savings	1,923.3	35.5
Total Target Savings	1,896.7	35%
Annual Surplus	26.6	0.5%

Table 2 - Total Masterplan Area Carbon Reduction Targets

3.2 RESPONSE TO (C)

The two energy centres will be sized and constructed to serve the final total predicted heating load. This will mean district heating pipe network may be oversized for their initial requirements, but only be used to full capacity once the development has reached 100% completion. Similarly variable speed pumps may also be employed to enable running at low loads but also be capable to supply adequate heat at project completion.

The buildings themselves will all be designed to have a central plant room with a suitably sized plate heat exchanger; ready for connection onto the DHN. Domestic properties will also be fitted with Heat Interface Units for connection onto the central heating plant rather than local gas boilers as is typically the case.

The implementation masterplan provides more details regarding the timescales and sequencing of the different development stages. EC1 will be constructed as part of the First Development Stage and will be able to service these buildings at the time of completion. The second energy centre will begin construction with Development Stage 2, but will only go online following completion of 79% of dwellings. Temporary gas-fired boilers will be required to serve phases 2a, 2b and 3 until the second energy centre comes online

3.3 RESPONSE TO (G)

If emissions are not below target levels on site, then an allowable solutions payment will be made equating to £60 per tonne above the target (currently set at 35%). Further details on how this will be monitored can be found on the 'CO₂ Reduction Template' which accompanies this document.

It should be noted that the requirement for zero carbon homes has now been removed and as such only those emissions above the 35% reduction target will need to offset through this method, rather than the entirety of the remaining CO₂ emissions.

3.4 RESPONSE TO (E)

It has been agreed that elements of the latter phases may be constructed out of sequence and indeed before the installation of the district heating network. This is currently the case with development stage 2A, but may also be the case with other plots as the scheme develops. Development stage 2A, is being developed ahead of the wider development and as such will not initially be able to connect to the consented district heating network (DHN) scheme (as laid out in the Energy Strategy) at the time of building handover, as this will not yet be available in that part of the development.

In this case the buildings will be fitted with a high-efficiency gas fired boiler plant to provide interim space heating and domestic hot water until such time that the DHN is ready to be connected. As such the building will be made connection ready, with pipework and space for heat exchangers, to ensure a smooth transition. Once the connection to the DHN is complete the gas boilers are likely to be retained as back-up capacity for the building.

This has been accepted by Southwark Borough Council's Head of Building Control as a methodology with which to comply with both Building Regulations Part L and planning conditions related to the plot. It is likely that two sets of "BRUKL" documents will be submitted to Building Control, one with the development using the temporary plant and one with the connection to the DHN. Any further plots which require completion out of sequence will follow the same methodology.

APPENDIX A

“Agreed Carbon Reduction Targets” - 35% reduction in the Part L 2103 regulated net CO2 emissions described on page 2 of Energy Assessment and District Heating Study, Executive Summary – Version 2 dated February 2015 forming part of the Outline Development submission.

Agreed Renewable Energy Targets” - 3% reduction in the Part L 2013 regulated net CO2 emissions (after reductions in CO2 emissions through the application of energy efficient design measures and decentralised energy) met by using renewable technology and low carbon sources of energy as described on page 2 of Energy Assessment and District Heating Study, Executive Summary – Version 2 dated February 2015 forming part of the Outline Development submission.

“Development Stage” - Any of the eight development stages identified as a development stage on the Development Stage Key Infrastructure Plans being Development Stage 1, 2a, 2b, 2c, 3, 4a, 4b, 4c;

“Energy Centre” - the energy centre to be provided within the Outline Development in accordance with the Site Wide Energy Strategy;

“Development Stage 2b Key Infrastructure Works” - The Key Stage Infrastructure Works for Development Stage 2b shown for illustrative purposes only on Plans NHH-AES-HTA-U-MPL-S106_104 Revision A – Development Stage 2B Key Infrastructure and which may include the Thurlow Street Infrastructure;

“Practical Completion” - Means completed save in minor respects so that: the Development Stage as identified in the Development Stage Key Infrastructure Plan OR as further identified on the Detailed Development Stage Delivery Plan used for the purpose and operate in the manner for which they were designed OR in relation to Dwellings can be Occupied and practically complete and Practically Completed shall be construed accordingly

“Aylesbury Estate” - The land identified in the AAAP but excluding Sites 1a and Site 7;