Doherty Energy

# SUSTAINABILITY STATEMENT

*(To Accompany Full Planning Application)*

*Site*
**LAND BETWEEN GONDAR HOUSE AND SOUTH MANSIONS, WEST HAMPSTEAD, NW6 1QD**

*Proposal*
**ERECTION OF SIX RESIDENTIAL DWELLINGS**

*Client*
**AN:X DEVELOPMENTS**

11th MAY 2020
Ref. E909-SS-01

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## 1.0 INTRODUCTION

a) Doherty Energy Limited have been instructed by AN:X Developments to prepare a Sustainability Statement to support the submission of the planning application for the development at Land between Gondar House and South Mansions, West Hampstead NW6 1QD. This report must be read in conjunction with the application forms, certificates, detailed plans and other supporting documents submitted to the Local Authority as part of the application.

b) This development is for the erection of six dwellings in a single block at Land between Gondar House and South Mansions, West Hampstead NW6 1QD.

c) It is proposed that in order to meet the requirements of policy this development will adopt a high standard of design with regard to energy efficiency principles.

d) The objectives of this Sustainability Statement are to make consider sustainable development from the start of the design process, through the construction stage to the operation and use of the building.

e) The Sustainability Statement should be read in conjunction with the Energy Statement. The Energy Statement makes an appraisal of the carbon dioxide emissions of the proposed development, assess the potential fabric and building services efficiencies to reduce the carbon dioxide emission, review the various methods of generating and using renewable energy at source, and to suggest the most appropriate means by which the development can contribute towards the aspiration of policy relating to reducing energy consumption and renewable energy provision. It also investigates the water usage of the development with a view to reducing the water consumption of the dwelling.

f) The Energy Statement also looks at the initial risk of overheating with the view of following the cooling hierarchy.

## 2.0 POLICY CONTEXT

a) The London Borough of Camden and the Greater London Authority aim to tackle the causes of climate change in the borough and London as a whole by ensuring developments use less energy and assess the feasibility of decentralised energy and renewable energy technologies.

b) As any new development has the potential to increase carbon dioxide emissions and if local and national carbon dioxide reduction targets are to be met, it is crucial that planning policy limits carbon dioxide emissions from new development wherever possible.

c) The Camden Local Plan sets five policies with regard to sustainability and climate change. Although this Sustainability Statement shall mainly address Policy CC2 – Adapting to climate change and the associated Energy Statement shall address CC1 – Climate change mitigation, as these Policies are interlinked, there is a degree of cross over between the two reports.

d) Under Policy CC1 – Climate change mitigation, the Local Authority require all developments to help minimise their effects on climate change by encouraging them to meet the highest feasible environmental standards that are financially viable during the construction and occupation of the development.

e) The Policy CC1 states that Camden will:
   a. promote zero carbon development and require all development to reduce carbon dioxide emissions through following the steps in the energy hierarchy;
   b. require all major development to demonstrate how London Plan targets for carbon dioxide emissions have been met;
   c. ensure that the location of development and mix of land uses minimise the need to travel by car and help to support decentralised energy networks;
   d. support and encourage sensitive energy efficiency improvements to existing buildings;

e. require all proposals that involve substantial demolition to demonstrate that it is not possible to retain and improve the existing building; and
f. expect all developments to optimise resource efficiency.

For decentralised energy networks, we will promote decentralised energy by:

g. working with local organisations and developers to implement decentralised energy networks in the parts of Camden most likely to support them;
h. protecting existing decentralised energy networks (e.g. at Gower Street, Bloomsbury, King's Cross, Gospel Oak and Somers Town) and safeguarding potential network routes; and
i. requiring all major developments to assess the feasibility of connecting to an existing decentralised energy network, or where this is not possible establishing a new network.

To ensure that the Council can monitor the effectiveness of renewable and low carbon technologies, major developments will be required to install appropriate monitoring equipment.

f) The London Borough of Camden's Sustainability Plan 'Green Action for Change' commits the Local Authority to seek low and where possible zero carbon buildings. New developments in Camden will be expected to be designed to minimise energy use and carbon dioxide emissions in operation through the application of the energy hierarchy. This is in line with the requirements of the London Plan.

g) The Council's Sustainability Plan 'Green Action for Change' commits the Council to seek low and where possible zero carbon buildings. New developments in Camden will be expected to be designed to minimise energy use and carbon dioxide emissions in operation through the application of the energy hierarchy.

g) The Assessment shall be carried out following the principles set out in the "Energy Hierarchy". These principles can be summarised as follows:

- Be Lean –use less energy
- Be Clean – supply energy efficiently
- Be Green – use renewable energy

h) At this stage in the design of the development, the detailed Building Regulations construction information has not been prepared and therefore following detailed construction design, the energy calculations will be revisited to ensure the energy requirements and carbon dioxide emissions are up to date.

i) The target for new dwellings within the policy area must be carbon neutral. A carbon neutral development can be defined as one where the building and its use contribute no net additional carbon dioxide emissions to the atmosphere during occupation in a calendar year. This includes emissions from 'regulated' and 'unregulated' energy use covered under Approved Document L1A of the Building Regulations

j) Regulated energy uses include space and water heating, lighting and ventilation. Unregulated energy uses are those relating to 'plug loads' or 'process loads' (electricity usage by 'unregulated' appliances and equipment used within the building).

k) In a calendar year, to be carbon neutral the emissions from both 'regulated' energy use and expected energy use from 'unregulated' appliances, must be cancelled out by the generation of renewable energy. As renewable energy is generated irregularly throughout

l) Under the Policy CC2 – Adapting to climate change, the Local Authority requires new development to be resilient to climate change.

m) The Policy states that all development should adopt appropriate climate change adaptation measures such as:

a. the protection of existing green spaces and promoting new appropriate green infrastructure;
b. not increasing, and wherever possible reducing, surface water runoff through increasing permeable surfaces and use of Sustainable Drainage Systems;
c. incorporating bio-diverse roofs, combination green and blue roofs and green walls where appropriate; and
d. measures to reduce the impact of urban and dwelling overheating, including application of the cooling hierarchy.

n) Developments of highly sustainable buildings will go some way to achieving the principles of sustainable living and should ensure that carbon emissions in construction and occupation are minimised.

o) In addition, as Greater London is an area of serious water stress as it's rainfall is lower than the national average, a key part of achieving sustainable development is making sure new developments are as water efficient as possible. As such, the London Borough of Camden would expect new residential developments to deliver predicted water consumption of below 110 litres per person per day.

p) There are numerous water saving measures that can be incorporated to improve the water efficiency of the development, such as low flush toilets and water efficient taps, showers, dishwashers and washing machines. It should also include water recycling through rainwater harvesting and/or greywater recycling.

## 3.0 SUSTAINABLE DESIGN AND CONSTRUCTION ASSESSMENT

a) The building fabric, the building services and the management of the building broadly determines its energy usage. The detailed design of a building is an iterative process, often requiring the involvement of different professional disciplines to establish the fundamental objectives of the design. An overall design philosophy in this respect has been established at an early stage.

b) As a result of central Government objectives, followed through at local level the general design philosophy for this site has a strong emphasis on sustainable design. This is not only in terms of the location and suitability of the site but also in relation to the way in which the building is constructed and will be used by its future occupants.

c) The first step in developing an integrated design is to establish the function of the buildings envelope and how it interacts with the usage patterns of the building and the technology used to condition the individual spaces.

d) Good fabric design can minimize the need for services. Where appropriate, designs should avoid simply excluding the environment, but should respond to factors like weather and occupancy and make good use of natural light, ventilation, solar gains and shading, where they are beneficial.

e) This section of the report will look at the ways in which energy is used within the proposed building and how the design can encourage efficient levels of energy consumption.

### 3.1 Management

a) Although improvements can be made to the fabric and services of a building, often the biggest impact on the day-to-day energy consumption is influenced by the way in which the building is managed. It is common to find well-designed buildings operating badly due to poor management. Conversely, poorly designed buildings can be optimized to their maximum efficiency through good management practices.

b) It is recommended that due consideration is given to the management strategy of the building. It is understood that the dwellings will be within private ownership. However, there is still an opportunity to provide for the most efficient management system and to encourage the future occupants to manage their home efficiently.

c) This may include the use of movement sensor switched lighting systems, the installation of energy efficient electrical appliances, efficient lighting and fittings that do not permit the use of non-efficient lamps, tightly controlled heating and ventilation specific to the location within the dwelling, installation of efficient hot water systems and the provision of recycling facilities.

d) The EU energy efficiency labelling scheme rates products from A (the most efficient) to G (the least efficient). For refrigeration, the scale now extends to A++. The occupants of the dwelling shall be provided with information on the EU Energy Efficiency Labelling Scheme so that they are informed of the benefits of the scheme.

### 3.2 Ventilation

a) Natural ventilation is the most energy efficient form of ventilating any space. The proposed use and traditional architectural design of this building enables it to make best use of natural ventilation via openable windows.

b) Horizontal pivoted windows produce the most effective ventilation because of their inherent characteristic to develop large openings, where air will tend to enter at the lower level and exit via the top. They are easily adjustable to provide control and reduce the amount of energy required to run and maintain artificial ventilation systems. Normal casement windows can provide a degree of natural ventilation and with the layout of the dwelling; it is possible to obtain good cross ventilation.

c) Given the historical records for the British Isles, the weather permits a possible energy saving with the use of windows to provide cooling and ventilation. When the outside temperature ranges between 14 °C through to

24 °C, people are able to moderate the heat build-up in the space with the use of an openable window systems.

d) In addition to allowing direct and flexible control of heat through the use of openable windows they, also provide for the natural provision of fresh air to the occupants eliminating the need for artificially produced fresh air supply.

e) At other times of the year, mechanical ventilation with heat recovery can conserve energy in dwelling by recovering heat from extracted air and transferring it to the incoming air. This works both ways so if the outside temperature is higher than inside the exchanger helps to maintain a comfortable internal environment. The mechanical ventilation with heat recovery system ensures high air quality whilst maintaining a balance between extraction and supply.

### 3.3 Heating System

a) The proposed method of heating of the dwellings is by the use of highly efficient gas fired combi boilers. This shall be appropriately designed to provide suitable conditions for the occupants and to offset the heat losses through the fabric of the dwelling.

b) Due to the high level of insulation standards required under the current building regulations and the associated heat gains of the building, the level of artificially produced heat required to the internal spaces is envisaged to be low.

c) The use of thermostatic controls together with time switches and override facilities shall ensure that heating is optimally controlled to use the least amount of energy.

d) Weather compensation can be incorporated into the controls of the heating system. This will automatically adjust the flow temperature of the heating as the outside temperature rises, thus reducing the energy used by the heating system and the carbon emissions of the dwelling.

### 3.4 Lighting (Natural / Artificial)

a) The proposed design makes best use of natural daylight to reduce the amount of electrical energy used to provide the minimum luminance for the required conditions. All rooms within the dwellings are to be provided with natural light via windows where possible. The number of windows proposed and the use of dimming controls on the lighting scheme where appropriate may assist in achieving the maximum reduction of electrical consumption.

b) When selecting luminaries, consideration should be given to their inherent local power consumption and luminance levels. This together with the use of energy saving lamps will reduce the consumption of energy through lighting to a minimum. It is suggested that a development of this kind could reduce the energy usage further by installing luminaries that only allow the use of energy saving lamps.

c) Any lighting in the external areas shall be fitted with automatic control systems, like passive infrared sensors, time switches or “dawn to dusk” day light sensors. These luminaires shall be fitted with low energy lamps.

### 3.5 Hot Water Systems

a) The hot water system shall be designed to appropriate standards required by the current building regulations. This will ensure the minimum amount of heat loss from hot water pipe work by applying a high standard of thermal insulation and ensuring the correct circulation throughout the system.

b) Waste Water Heat Recovery Systems can be attached to the showers and are a proven and cost effective way to achieve energy savings and carbon emission reductions. They are either fitted around the waste pipe from a shower or bath, or in the shower tray itself, and recover heat from the drain water as it leaves the shower or bath. This recovered heat is used to preheat the cold water feed to the boiler or hot water storage tank and therefore reduces the amount of energy used by the boiler.

c) It is possible, with the ever-increasing demand on the limited supply of the natural resource of water, to suitably restrict the flow of water outlets. Flow

restrictors can be installed on outlets where a reduced flow is acceptable, for example on showers and basins. This system allows for a uniform maximum flow to be provided regardless of natural water pressures throughout the dwelling.

### 3.6 Cold Water Systems

a) Cold water consumption can be kept to a minimum by the installation of a numbers of facilities.

b) Modern water efficient dual flush WC cisterns should be fitted as standard and as with the hot water system flow restrictors can be fitted to provide a uniform maximum flow rate throughout the dwelling.

c) Simple water butts can be provided in appropriate locations, allowing for the collection of rain water for the direct use on external landscaped areas. Water butts are the cheapest and easiest way of reducing the use of drinking water for this purpose. There are many products on the market ranging in price and size and some local authorities offer their own option at a subsidised price to the consumer.

d) It is not possible to estimate the total water saving from the installation and use of such a device as this is very much dependant on the landscaping design for the dwelling, the annual rain fall and the required usage of this water within the domestic setting. However, an average storage device can produce up to 5000 litres of usable rainwater per year.

### 3.7 Sustainable methods of construction

a) Sustainable methods of construction can range from the simplest of solutions, such as construction in locations with access to sustainable modes of transport to the more complex solutions including passive solar design and rainwater harvesting.

b) The following paragraphs will briefly discuss some of the additional options available for incorporation into the scheme at this early stage or later during the detailed design process.

### 3.8 Passive Solar Design

a) Passive solar gain can be experienced in both a positive and negative manner. South facing facades can often benefit from solar passive gain during the winter months but this is counteracted by the increased requirement for cooling during the summer.

b) In a scheme like that proposed, it is important to recognise where solar passive gains will be experienced and to design the scheme to enhance the effect during the winter and protect from it during the summer.

### 3.9 Building Envelope

a) All facades of the dwelling shall be designed to ensure that the minimum standards required by the Approved Document L of the Building Regulations are exceeded and that care shall be exercised to ensure flexibility and good shading systems are installed where necessary.

b) Any insulation that is used in this development shall have global warming potential of less than 5. This shall include not only the thermal insulation, but any acoustic insulation.

### 3.10 Surface Water Drainage

a) Surface water drainage at the site will follow the Sustainable Drainage Systems (SuDS) management train. Further details can be found in the Drainage Strategy.

### 3.11 Green Roof

b) A green roof or living roof uses the roof of the building and partially or completely covers the roof with vegetation and a growing medium, planted over a waterproofing membrane. It may also include additional layers such as a root barrier and drainage and irrigation system.

c) There are a number of roofs at various levels of the building and these have been identified as being used as green roofs. Refer to the Architects drawings for further details.

### 3.12 Rainwater Harvesting

a) The harvesting and recycling of rainwater can considerably reduce mains water consumption for toilets and other uses that do not need a sanitized water supply.

b) However, the plant space requirement for treatment and storage is often difficult to incorporate into this scheme. In this case, it will be located externally to the dwelling and buried into the garden. It also requires additional public health and water system risers to be installed to serve the facilities able to utilise such a water supply.

c) Another option would be to install a water butt system. This would allow any excess water to be collected for use externally and in the garden.

### 3.13 Sustainable Material Choices

a) A high percentage of carbon dioxide emissions are generated by unsustainable modes of transport. This is not only made up of the use of the private car but is substantially increased by the use of road as the popular way of transporting materials and goods needed during the construction purposes.

b) Many opportunities are now available to Architects wishing to make more sustainable choices when specifying building materials. The consideration can include where the materials come from, its' travel distance, mode of transport, and the nature in which the material resource is manufactured and managed.

c) Throughout the design process consideration will be given to not only the quality of materials to be specified, but also to the quantities. Additional consideration will be given to building material selection that maximises the life expectancy of the building by selecting materials build-ups from the Green Guide to Specification published by the Building Research Establishment (BRE).

d) The proposed development will be constructed of materials with a low environmental impact, achieving a Green Guide rating of between A+ and D for all five elements of construction, as follows:

- Roof.
- External walls.
- Internal walls.
- Upper and ground floors.
- Windows.

e) Consideration will also be given to the use of materials and products manufactured in the UK and Europe. Once a contractor is appointed, the opportunities for the use of local suppliers for their supply chain will also be explored.

f) All timber, including that used in the construction processes, will be required to be legally sourced. The definition of legally sourced timber follows the UK Government's definition of legally sourced timber, according to the CPET 2nd Edition report on UK Government timber procurement policy.

### 3.14 Recycling Facilities

a) In order to encourage the homeowners to recycle household waste, the dwelling can be provided with recycling bins, both within the dwellings and in the external waste storage areas.

b) The recycling bins could be in the form of three internal in a dedicated non obstructive location in the kitchen. The bins shall be in a variety of sizes and a total capacity of 30 litres and no individual bins shall have a capacity of less than 7 litres.

c) External bins shall be provided for the Local Authority collection scheme. These shall be located in a dedicated location.

## 4.0 CONCLUSION

a) The London Borough of Camden's Local Plan and the London Plan require new residential developments to minimise and exhibit the highest standards of sustainable design and construction.

b) This development is for the erection of six residential units in a single block at Land between Gondar House and South Mansions, West Hampstead, NW6 1QD.

c) The objectives of this Sustainability Statement are to make consider sustainable development from the start of the design process, through the construction stage to the operation and use of the building.

d) Policy CC2 – Adapting to climate change and the associated Energy Statement shall address CC1 – Climate change mitigation of the Camden Local Plan require developments to minimise their effects on climate change and to be resilient to climate change.

e) This Sustainability Statement investigated the potential options that could be incorporated to help the development to meet the highest feasible environmental standards that are financially viable during the construction and occupation of the development.

f) The associated Energy Statement investigates the proposals to adopt a high standard of design with regard to energy efficiency principles and will achieve the reduction in the carbon dioxide emissions, reduce water consumption and limit the risk of overheating.

g) This Sustainability Statement, together with the Energy Statement demonstrates that the proposed development complies with the requirements of planning policy with regard to adapting to climate change and mitigating the climate change effect. It is for these reasons it is considered that this application should be viewed favourably by the London Borough of Camden.