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# McCarthy Stone

Huyton Lane, Huyton

## Energy & Sustainability Statement

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February 2023



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| Project:        | Huyton                                                                                                                                       |
| Document Title: | Energy & Sustainability Statement – REV C                                                                                                    |
| Date:           | February 2023                                                                                                                                |
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## **1.0 Executive Summary**

Instructions were received from McCarthy Stone to produce an Energy and Sustainability Statement for the proposed development at Huyton Lane, Huyton in response to the relevant Knowsley Council planning conditions, which are Policy CS2: Development Principles, Policy CS22: Sustainable and Low Carbon Development and Policy CS23: Renewable and Low Carbon Infrastructure

The statement details the proposed specification for the scheme. The fabric comprises of a Light Gauge Steel Frame (LGSF) wall construction utilising Modern Methods of Construction (MMC), with high performing elements on other areas that provide a comfortable pass against the fabric target in Part L 2021.

The statement also details the M&E strategy for the scheme, which is based on an all-electric strategy utilising electric panel heaters for space heating, Air Source Heat Pump Hot Water Cylinders to provide water heating to apartments, and Mechanical Ventilation with Heat Recovery for ventilation to apartments. An array of Solar Photovoltaic panels with a total predicted output of 15,926.37 kWh / year will also be applied to the scheme, to serve the communal areas. This allows the proposed scheme to comfortably achieve the Carbon Emissions and Primary Energy targets of Part L 2021.

The statement will also detail the client's policies and procedures for addressing Sustainable Water Usage (with a proposed water usage that improves on the Part G targets), Sustainable Construction and Waste Management and Overheating (which will be addressed using the Part O methodology) and Electric Vehicle (EV) Charging.

## **2.0 Introduction**

### **2.1 Purpose of the Report**

Instructions were received from McCarthy Stone to produce an Energy and Sustainability Statement for the proposed development at Huyton Lane, Huyton. This report has been produced to support the planning application to be submitted for the development.

This statement provides a response to the relevant planning policy objectives within the below listed documents:

Knowsley Council – Guidance on the local validation requirements for planning applications submitted to the Knowsley Council – adopted 6<sup>th</sup> February 2019.

Knowsley Council – Knowsley Local Plan Core Strategy – January 2016.

### **2.2 Site and Building Description**

The development will be located at Huyton Lane, Huyton. The application seeks approval for the construction of a retirement living complex consisting of 53 apartments (a mix of 1 & 2 bedroom), circulation spaces, a homeowner's lounge, a Guest Suite, staff areas and reception area, as well as supplementary parking and landscaping. A proposed site layout has been included in Appendix 1.

### **2.3 Methodology**

The proposed drawings, elevations and site plans were reviewed to gain a good understanding of the development; following this the relevant policies were identified. This development is located in Huyton, within the authority of Knowsley Council.

Therefore, the Knowsley Council – Guidance on the local validation requirements for planning applications submitted to the Knowsley Council – adopted 6<sup>th</sup> February 2019 has been identified as relevant. This stipulates which policies from the Knowsley Local Plan Core Strategy – January 2016 should be responded to as part of an Energy and Sustainability Assessment. As such, elements of Policy CS2: Development Principles, Policy CS22: Sustainable and Low Carbon Development and Policy CS23: Renewable and Low Carbon Infrastructure have been identified as relevant.

SAP calculations for all plots have been completed to determine the approximate performance of the development. The development will be assessed against the 2021 Part L1A Regulations, so the Elmhurst Energy Design SAP 10 Software has been used to complete these calculations.

An SBEM calculation has also been undertaken using Beta software for the 2021 Part L2A Regulations, which has been used to provide data for this statement. The specifications and results for the buildings as proposed are compared to the target building baseline, which is the benchmark for Part L of Building Regulations compliance.

A proposed sanitaryware specification has been calculated using the Code for Sustainable Homes (CfSH) tool in order to demonstrate Part G Water Efficiency performance.

The statement has been completed in accordance with the current Site Plan, that is Document 22053\_1002\_Proposed Site Plan Rev C.

### 3.0 Planning Policy

#### 3.1 Knowsley Council – Knowsley Local Plan Core Strategy – January 2016

##### “Policy CS2 – Development Principles

*Principle 2: Reduce carbon emissions and adapt to the effects of climate change by:*

- a) Contributing to reductions in carbon dioxide emissions from all sources, in line with national targets;*
- b) Ensuring an ability to adapt to future changes to national targets for carbon dioxide and other greenhouse gas emissions, including recognising the role of new technology*
- c) Identifying and applying measures offering effective mitigation and adaptation to likely environmental, social and economic impacts of climate change; and*
- d) Meeting appropriate minimum standards for sustainability.*

##### “Policy CS22 – Sustainable and Low Carbon Development

##### *Sustainable Construction Principles*

- 1) New development will be required to meet high standards of sustainable design and construction and minimise carbon emissions. This should be achieved by:*
  - a) Designing new buildings for flexible uses throughout their lifetime;*
  - b) Avoiding the creation of adverse local climate conditions by using natural systems to avoid internal overheating and excessive heat generation;*
  - c) Ensuring developments are comfortable and safe for users;*
  - d) Making the most effective and sustainable use of water, aggregates and other resources;*
  - e) Limiting energy use by incorporating high standards of insulation, heat retention, natural ventilation and passive solar techniques;*
  - f) Landscaping (including measures such as green walls or roofs) to create shelter and reduce any heat island effect;*
  - g) Using sustainable materials from local suppliers where possible;*
  - h) Supplying energy efficiently and incorporating decentralised energy systems, using renewable and low carbon energy where feasible;*
  - i) Managing flood risk, including through the use of Sustainable Drainage Systems (SuDS) and flood resilient design for infrastructure and property; and*
  - j) Promoting sustainable waste practices in new and existing developments.*

## 4.0 Policy Response

### 4.1 Policy CS2 – Development Principles

In efforts to reduce the overall carbon emissions associated with the development and to maximise the energy efficiency, the developer has a robust 'fabric first' approach to the build specification, which allows it to comfortably achieve the TER, TPER and TFEE targets under ADL1 2021.

This has been achieved through building fabric improvements with an uplift on the minimum requirements of ADL1 2021, and also specification of efficient mechanical and electrical services, including a number of 'add-on' measures to improve efficiency and performance.

The table below demonstrates how the specification of the development at Huyton Lane, Huyton compares to the limiting values and minimum efficiencies allowed within Part L 2021:

| <b>Table 1: Proposed Specification</b> |                                           |                                      |
|----------------------------------------|-------------------------------------------|--------------------------------------|
| <b>Building Element</b>                | <b>Limiting Part L 2022 Specification</b> | <b>Proposed Specification Part L</b> |
| <b>External Walls U-Value</b>          | 0.26                                      | 0.17                                 |
| <b>Roof U-Value</b>                    | 0.16                                      | 0.11                                 |
| <b>Ground Floor U-Value</b>            | 0.18                                      | 0.11                                 |
| <b>Window U-Value</b>                  | 1.60                                      | 1.30                                 |
| <b>Party Wall U-Value</b>              | 0.20                                      | 0.00                                 |
| <b>Space Heating Efficiency</b>        | 100%                                      | 100%                                 |
| <b>Pressure Test</b>                   | 8.00                                      | 4.00                                 |
| <b>Lighting Lumens</b>                 | 75 lm/w                                   | 80 lm/w                              |

The development is proposed to adopt a 'fabric first' approach to the specification and as detailed above, the proposed U-Values are a significant uplift on the minimum requirements under Part L 2022.

The proposed build-up for the external wall for the apartments is a Light Gauge Steel Frame (LGSF) system containing a total insulation thickness of 230mm, that generates a U-value of 0.17W/m<sup>2</sup>K. Well insulated cavity walls, roof, floors and openings provide a comfortable environment within the development and reduce the buildings' reliance on the main heating system. The air permeability target in the apartments is 4.00 m<sup>3</sup>/(h.m<sup>2</sup>), providing a significant improvement over the Notional Building target.

It is proposed that the scheme will be constructed using Modern Methods of Construction (MMC). There are numerous benefits to the use of MMC, hence why the Government is keen to promote it to the construction industry going forward and why MMC has been endorsed by the Government's Construction Playbook.

MMC utilises offsite construction far more than conventional construction. This allows for a much more controlled environment and therefore a significantly greater degree of control throughout the process, which leads to fewer quality issues, lower levels of defects and provides greater certainty in design programming and build costs.

MMC can also provide for a more sustainable construction process, as the greater degree of quality control eliminates wastage and the factory based setting means less work and materials storage is required on site, reducing air pollution in the vicinity of the construction site. The use of MMC can also deliver significant time savings across the construction process, through better co-ordination of factory and on-site processes, and then better on-site methodologies.

The use of bespoke calculated thermal bridge details also ensures that thermal performance is enhanced by minimising heat and energy losses through thermal bridges and air gaps.

Many of the plots have South East or South West orientated elevations, with sizable areas of glazing achieved through the installation of floor to ceiling windows. This means that solar gain will be maximised to these plots, which will reduce demand on the space heating system. The simple form of the site layout and the apartments means that heat loss wall area and complex thermal bridges are minimal to most plots on the scheme, which again will minimise space heating demand.

McCarthy Stone utilise electric panel heating to all apartments, which achieve efficiencies up to 100%. Due to the continuing decarbonisation of the UK energy supply, electricity is increasingly becoming the low carbon choice for heating strategy, and it is expected this will continue as more renewable electricity sources become operational and fossil fuel sources are phased out.

Water Heating demand for the apartments will be serviced by an Air Source Heat Pump Hot Water Cylinder, currently proposed to be the Dimplex EDEL product, which can be classified as a low carbon technology. This is a stainless steel cylinder with a hot water heat pump mounted on the top of it. The system works by extracting heat from external air, supplied through insulated ductwork. As such, it is able to provide hot water with a COP efficiency of up to 336%, which is significantly higher than the efficiency of a standard immersion cylinder powered by direct electricity.

Another key element to the specification of the proposed development is the utilisation of mechanical ventilation with heat recovery (MVHR) in the apartments. This system allows warm stale air produced by occupancy and internal activities to be extracted from the building; however, the heat within this air is retained and transferred to warm the fresh air being brought into the building from outside. The use of MVHR reduces the need to use the main heating system as it provides background heating through occupation (as well as improving comfort levels through the flow of fresh air).

In communal areas, lighting occupancy sensors will be utilised that switch off or dim the lighting when occupants are not present in areas such as circulation spaces, toilets or storage areas. This prevents lighting from being left on when it is not needed, therefore saving energy.

Metering and sub-metering equipment for the heating system will also be used that help identify areas where more energy than expected is being used, such as heaters being left on at times when they are not needed or where there are defective elements present. This helps improve the heating strategy and therefore save energy.

McCarthy Stone will also install sufficient Electric Vehicle (EV) Charging points to comply with Part S of the Building Regulations at a minimum. While this is not directly connected to the energy performance of the building, it does demonstrate their commitment to emphasising low carbon technologies throughout the site and adaptability to future needs, as this will provide the easily accessible facility for the end user to operate an electric vehicle rather than a petrol fuelled vehicle.

To summarise, all of the main building elements outlined in Table 1 have been designed to provide a thermally efficient building envelope that achieves an improvement on the minimum requirements set out within Part L. The below tables detail the performance of the proposed scheme against all relevant assessment metrics of Part L 2022. The full outputs for the SAP and SBEM calculations used to derive these figures are available on request.

**Table 2: Part L 2022 Carbon Emissions**

| Domestic                                  | Units (kg/CO <sub>2</sub> /year/m <sup>2</sup> ) |
|-------------------------------------------|--------------------------------------------------|
| Target Emission Rate (Block Compliance)   | 12.03                                            |
| Dwelling Emission Rate (Block Compliance) | 4.38                                             |
| Percentage Reduction (%)                  | 63.57                                            |
| Non-Domestic                              | Units (kg/CO <sub>2</sub> /year/m <sup>2</sup> ) |
| Target Emission Rate                      | 6.48                                             |
| Building Emission Rate                    | 6.47                                             |
| Percentage Reduction (%)                  | 0.15                                             |

**Table 3: Part L 2022 Primary Energy**

| Domestic                                        | Units (kwh/ m <sup>2</sup> /year) |
|-------------------------------------------------|-----------------------------------|
| Target Primary Energy Rate (Block Compliance)   | 64.09                             |
| Dwelling Primary Energy Rate (Block Compliance) | 45.81                             |
| Percentage Reduction (%)                        | 28.51                             |
| Non-Domestic                                    | Units (kwh/ m <sup>2</sup> /year) |
| Target Primary Energy Rate                      | 67.07                             |
| Building Primary Energy Rate                    | 64.36                             |
| Percentage Reduction (%)                        | 4.04                              |

**Table 4: Part L 2022 Fabric Efficiency**

| Domestic                                             | Units (kwh/ year/m <sup>2</sup> ) |
|------------------------------------------------------|-----------------------------------|
| Target Fabric Energy Efficiency (Block Compliance)   | 23.31                             |
| Dwelling Fabric Energy Efficiency (Block Compliance) | 21.63                             |
| Percentage Reduction (%)                             | 7.22                              |

Based on the Design Stage SAP's produced, this scheme will demonstrate an average improvement over the TER of 63.57%, which is a significant improvement over the minimum standards and indeed goes beyond the expected target for the 2025 Future Homes Standard.

## **4.2 Policy CS22 – Sustainable and Low Carbon Development**

A number of the key requirements of this policy have already been addressed on the previous section of this statement, e.g. those regarding limiting energy use and the efficient supply of energy. The relevant elements that have not been discussed, will now be addressed below.

While the proposed use of two low carbon technologies, namely an ASHP Hot Water Cylinder and MVHR, has already been confirmed in Section 3.1, a review of relevant renewable technologies for the scheme can be found below.

### **Renewable Technologies**

#### Small-Scale Wind Turbines

Wind turbines convert the power in the wind into electrical energy using rotating wing-like blades to drive a generator. Similar to Photovoltaic panels (PV), they can either be grid connected or used to charge batteries or for on-site use.

Wind turbines can range from small domestic turbines producing hundreds of watts to large offshore turbines with capacities of 3MW and diameters of 100m. A detailed study for urban deployment should take into account wind speed and turbulence and potential noise pollution issues.

There are two main types of turbine available, horizontal or vertical axis. Horizontal axis turbines, (sometimes referred to a propeller type) range in scale from 0.5m to 100m diameter. Vertical-axis turbines rotate around a vertical axis, resulting in lower rotor tip speed and reduced noise and vibration issues.

In both cases, the output of the turbine will be dependent upon both the start-up speed of the blades and the specific gearing and generator design.

The most common cause of poor performance is poor siting of the turbine. The turbulent wind conditions often found in urban locations undermines the performance of horizontal scale turbines as they have to regularly rotate Yaw to face the oncoming wind.

This process reduces the proportion of energy that the turbine can capture. Vertical axis turbines are designed to avoid this issue by always having blades facing the wind.

These performance issues mean that as a general rule, horizontal turbines are better suited to less turbulent wind regimes, whilst vertical axis turbines offer potential for installation in urban environments. In either case, the turbine must be mounted at a reasonable height to ensure that it can 'see' the wind.

For urban deployment, this means that roof mounted turbines still require a mast and the structural design of the building must be developed to incorporate the additional loads and stresses.

Due to the likely issues associated with permissions required for such installation and the potential for nuisance noise in a residential area, the use of wind turbines has not been considered appropriate for the scheme.

### Solar Thermal Heating

Solar thermal panels collect solar radiation to heat water that can then be used for either space heating or domestic hot water. There are two types of competing solar thermal technologies; flat-plate and evacuated tube.

Evacuated tube collectors are more efficient and therefore require less active collector array than the equivalent output of a flat plate system. However, in general, capital costs for the two technologies are comparable.

The system consists of solar collectors that are often roof mounted. Liquid is passed through the solar collectors and then to a heat exchanger in a domestic hot water cylinder, which will also have a top-up heat source (gas, biomass, or electricity) to ensure reliability of supply.

Solar thermal collectors can still produce energy from diffuse sunlight and are therefore less susceptible to performance reductions from orientation and angle compared to PV.

A typical 3-4m<sup>2</sup> collector area system (area dependent on technology) is capable of providing 50% the annual domestic hot water demand for a typical 2-3 bed house. The proportion of hot water provided varies over the course of a year, with the system achieving 100% coverage during the summer months and 5% during the winter.

It is highly unlikely that solar thermal would be the most efficient or cost-effective renewable technology for use on this scheme. As such, the use of solar thermal has not been considered appropriate for this scheme.

### Heat Pumps

While heat pumps are strictly a low carbon technology rather than a true renewable, their current prominence in discussions about the UK's future energy strategy means that their inclusion within this assessment can be considered relevant.

A ground source heat pump (GSHP) can harness the energy from the ground for use within buildings. This makes it possible to use the heat in the ground during the winter months to meet our heating needs. In the summer months it is also possible to cool buildings using ground temperatures that are lower than ambient air.

A typical ground system consists of a ground to water heat exchanger often called the 'ground loop' or 'ground coil', a heat pump and a distribution system.

Water (or other solution) is passed round the system 'absorbing' heat from the ground and upgrading this heat via the heat pump into the building.

The heat exchanger can consist of either a vertical borehole system, where long pipes are driven deep into the ground or a horizontal trench system, which operates at shallower depths. The performance of a HP is measured using a COP (coefficient of performance). This defines the amount of useful energy output from the heat pump compared to the energy input. Typical systems can achieve a COP in the region of 350-400%.

The COP is maximised where the flow temperature of the heating circuit is between 35-40°C and therefore GSHP are ideally suited for connection to under-floor heating. The potential scale of GSHP is only limited by the availability of land for the ground loop and reasonable levels of energy abstraction. Typical costs for ground source heat pumps range from £800/kW for trench systems to £1,500/kW for vertical borehole systems.

The constraints and nature of the proposed site do not lend well to the use of ground source heat pumps and as a result, this technology has not been considered to be feasible.

Air source heat pumps (ASHP) work in a similar way to ground source and are able to extract heat from the outdoor air, even when the outside temperatures are very low, for use in space heating and hot water systems. ASHP are also available in air – air formats, in which the heat is emitted into the building through ductwork, in which instance can also provide the option for air conditioning or cooling in summer, however they cannot serve hot water systems.

These systems only require space for an external condenser unit, which makes them much simpler to install when compared to GSHP. These systems also offer a significant reduction in carbon emissions from that of a conventional heating system (especially electric heating systems).

Given site constraints (both in terms of space required and potential noise and visual nuisance) as well as financial viability reasons, currently heat pumps are not considered appropriate for the proposed development.

It should be noted, however, that hot water demand for the apartments will be serviced by an Air Source Heat Pump Hot Water Cylinder. This means that the apartments will be utilising hot water produced at an efficiency that is significantly higher than that of a standard immersion cylinder powered by direct electricity.

### Solar Photovoltaics

Photovoltaic panels convert solar radiation into direct current electricity. In principle, they are an ideal source of renewable energy as they harness the most abundant source of energy on the Earth, the sun, and they produce electricity, which is the most useful form of energy.

PV's are silent in operation, have no moving parts and have a long life with low maintenance levels. PV systems can be connected to the grid or battery arrays in remote locations. Grid connected systems consist of PV arrays connected to the grid through a charge controller and an inverter.

PV cells are more efficient at lower temperatures so good ventilation should be allowed around the PV modules where possible.

McCarthy Stone put their customers at the heart of product choice, it is the attributes of PV's high performance by delivering real energy generation benefits to running costs, added to the low maintenance costs, which is vital to reduce whole life costs of a scheme for all residents. It is this that makes it their preferred renewable approach for CO<sub>2</sub> reduction and Energy reduction targets.

Based on the SBEM calculations, an additional output of 15,926.37 kWh / year is required, to ensure that Part L2A Compliance is achieved for the communal elements of the proposed scheme. The client has requested their chosen PV supplier to propose a suitably sized PV array in order to meet the output requirement, which they are committed to applying to the scheme, and the PV figure will be updated where required as the scheme design develops.

### Sustainable Water Usage

While there is no specific target detailed in this policy, it is proposed that the scheme complies with the Optional Requirement within Part G2 of the Building Regulations. This is a sanitaryware specification that does not exceed 110 litres/per person/per day. The development at Huyton Lane, Huyton will incorporate efficient, water saving sanitaryware to meet this goal. Where this is not possible, flow restrictors will be installed to limit water use of sanitaryware items.

A representative specification is listed below, whilst the final flow rates of individual sanitaryware items may change as detailed design progresses, the 110 Litre limit will be maintained. A full breakdown of calculations is available in Appendix 2.

The specification outlined in Table 5 below achieves 94.7 litres/ per person/ per day, this therefore is comfortably below the 110 litres/per person/per day target.

| Table 5: Proposed Sanitaryware Specification Flow Rates |                                                              |
|---------------------------------------------------------|--------------------------------------------------------------|
| Component                                               | Water Usage                                                  |
| WC's                                                    | 4.5 Litres (Full Flush Volume), 3 Litres (Part Flush Volume) |
| Showers                                                 | 7 Litres/Minute                                              |
| Wash-hand basin taps                                    | 5 Litres/Minute                                              |
| Kitchen taps                                            | 5 Litres/Minute                                              |
| Washing Machine                                         | 8.29 Litres/kg                                               |
| Dishwasher                                              | 1.25 Litres/Place Setting                                    |

It is assumed that the measures required for maximising the use of water recycling, flood risk and sustainable urban drainage systems will be confirmed in a separate statement.

## **District Heating**

An exercise has been completed reviewing the potential for the proposed development at Huyton Lane, Huyton to connect to an existing district heat network. The Association for Decentralised Energy's (ADE) District Heating connection map has been reviewed to confirm the closest possible connection point.

The closest connection point is Broadgreen Hospital which is approximately 3.55 km from the proposed site location. Due to the extended distance between these two points, and the nature of the heat network in question, it is considered that this would not be a feasible application.

## **Sustainable Construction and Waste Management**

The development at Huyton will strive to incorporate sustainable design into the building. The use of MMC is a vital component of this. Apart from the specific elements to be delivered using MMC, material selection will endeavour to show preference to suppliers who operate responsible sourcing practices and have current environmental management certificates. Examples including FSC/PEFC certified timber products will be utilised, this ensures all products have been obtained from sustainable and legal sources.

Where possible, local suppliers of required building materials will be given preferred selection over those who operate at further distance from the development site. Through this approach, delivery materials will be transported lesser distance, reducing the associated CO<sub>2</sub> emissions and fuel use of delivery loads. The procurement of these materials closer to the site, will support local businesses & operations within the region. Where allowing, suppliers who possess environmental certifications such as BES 6001/ISO 14001 will be sourced from to further encourage the use of materials ascertained from responsible accredited supply chains.

Similarly, where contractors and site personnel are required to aid the construction efforts, they too will also be given preferential consideration where they are local to the site. This again will reduce the associated CO<sub>2</sub> emissions of travel, in addition to supporting the local economy.

In efforts to reduce waste throughout the construction process, as part of the design development, the design team have implemented a number of measures to eliminate potential waste, which are augmented by the use of regimented and tested factory procedures for the MMC elements.

McCarthy Stone have an effective site waste management system adopting waste hierarchy principles of reduce, reuse, or recycle. All waste will be handled by a licensed waste contractor who will segregate and process waste produced. Such waste will be separated into key waste groups and recycled at a waste processing plant to be refined into new products, or reused in other projects where they cannot be reformed.

Site hoarding or materials where safe and appropriate are transported from other sites for reuse. The design of the apartments looks to incorporate recycling facilities for residents further encouraging the principles of recycling.

The development design is to standard material dimensions to avoid waste generation. This contributes towards the standardisation of the dwellings which reduces waste not only at the manufacturing stage, but also during construction as it reduces the need to re-size materials on site. In addition, the use of standardised materials increases the likelihood that the materials will be reused in the eventuality that the site is redeveloped in the future. The use of MMC is key to this aim.

Knowsley Council provides a specific fortnightly collection service for recycling, specifically for paper, cardboard, bottle plastics, glass bottles / jars, food tins and drinks cans. McCarthy Stone will ensure that a separate communal recycling bin will be installed and clearly signposted within the Bin Store area of the development.

### **Flexible Use**

While the intention is that the proposed scheme remains as an over 55s facility for the foreseeable future, the relatively simple form of the building does allow future repurposing. The obvious future options would be as a similar usage, for example as more standard apartment accommodation. However, the centralised plant area would also lend itself to a change of use to office accommodation. In addition, the MMC construction does make it easier for elements of the scheme to be removed and re-used elsewhere if this was ever required.

### **Overheating / Comfort**

Given the timescales of the proposed scheme, it will be assessed against the new Part O Overheating Building Regulations, using the Dynamic Thermal Modelling method, which follows the CIBSE TM59 methodology. It is currently expected that compliance will be achieved through a combination of passive measures and mechanical ventilation. Where further measures are required to ensure Part O Compliance, these will be installed in full by McCarthy Stone.

Trees and hedges to the South West boundary of the site will provide some shading to the apartments with South West facing elevations. The main internal communal areas of the site are well sheltered, with North West and North East facing elevations, that will allow for a comfortable environment for the residents while they are using the communal areas. In addition, the communal patio and residents garden areas are located to the North East of the site, and will therefore benefit from significant shading from the building.

## **5.0 Conclusion**

This statement has reviewed the proposed development at Huyton Lane, Huyton, a retirement living complex consisting of 53no apartments (mix of 1 & 2 bedroom) and associated communal areas, with supplementary parking and landscaping, and has provided an assessment of the proposed scheme against the relevant policies:

Policy CS2 – Development Principles - Principle 2.

Policy CS22 – Sustainable and Low Carbon Development - Sustainable Construction Principles – 1

The statement has highlighted that the scheme currently proposes to utilise a high performing thermal envelope to minimise heat loss, as well as efficient heating and lighting systems, which will drive energy efficiency in the building. This is augmented by the use of an ASHP system to provide hot water, and an MVHR system for ventilation, both of which are high performing products that drive low carbon, efficient energy usage.

As such, supplemented by a photovoltaic array for the communal areas, the proposed specification allows the scheme to comfortably comply with all metrics under the new Part L 2022 Building Regulations, and demonstrate a level of predicted carbon emission performance for the apartments that is more in line with the expected 2025 Future Homes Standard requirements. A PV array with a minimum output of 15,926.37 kWh / year will also be installed at the scheme, to ensure that Part L2A Compliance is achieved for the communal element.

A proposed sanitaryware specification of less than 110 litres/use/per person/per day (that is the Optional Requirement within Part G2 of the Building Regulations) has been detailed, in order to demonstrate the client commitment to conserve water.

Details have also been given of commitments and procedures to be complied with by the developer, in order to comply with the Sustainable Construction and Waste Management element. It is expected that the use of MMC will be key to the successful implementation of these strategies. An assessment has also been undertaken on the proximity of District Heating connections to the proposed scheme, as well as a review of future ‘flexible use’ options. An overview has also been given of the overheating mitigation measures that are proposed to be in place at the scheme.

Whilst the listed specification at this present time is the intended one at this time, the strategy and required PV contribution may be subject to change as design develops further. Nonetheless, it will be ensured that where any changes are made, compliance with the policy requirements listed will be maintained.



## Appendix 1

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### Proposed Site Plan





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## Appendix 2

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### Part G Water Calculations



|                   |              |
|-------------------|--------------|
| Job no:           | R3224        |
| Date:             | 12.01.2023   |
| Assessor name:    | Ben Matthews |
| Registration no:  |              |
| Development name: | Huyton       |

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### WATER EFFICIENCY CALCULATOR FOR NEW DWELLINGS - (BASIC CALCULATOR)

| House Type:                                |                             | Type 1              |                     | Type 2              |                     | Type 3              |                     | Type 4              |                     | Type 5              |                     | Type 6              |                     | Type 7              |                     | Type 8              |                     | Type 9              |                     | Type 10             |                     |
|--------------------------------------------|-----------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Description:                               |                             |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |                     |
| Installation Type                          | Unit of measure             | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day | Capacity/ flow rate | Litres/ person/ day |
| Is a dual or single flush WC specified?    |                             | Dual                |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Click to Select     |                     | Click to Select     |                     | Click to Select     |                     |
| WC                                         | Full flush volume           | 4.5                 | 6.57                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |
|                                            | Part flush volume           | 3                   | 8.88                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |
| Taps (excluding kitchen and external taps) | Flow rate (litres / minute) | 5                   | 9.48                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |
| Are both a Bath & Shower Present?          |                             | Shower only         |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     |
| Bath                                       | Capacity to overflow        |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |
| Shower                                     | Flow rate (litres / minute) | 7                   | 39.20               |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |
| Kitchen sink taps                          | Flow rate (litres / minute) | 5                   | 12.56               |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |
| Has a washing machine been specified?      |                             | Yes                 |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     |
| Washing Machine                            | Litres / kg                 | 8.29                | 17.41               |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |
| Has a dishwasher been specified?           |                             | Yes                 |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     | Select option:      |                     |
| Dishwasher                                 | Litres / place setting      | 1.25                | 4.50                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |
| Has a waste disposal unit been specified?  |                             | Select option:      |                     | 0.00                |                     | Select option:      |                     | 0.00                |                     | Select option:      |                     | 0.00                |                     | Select option:      |                     | 0.00                |                     | Select option:      |                     | 0.00                |                     |
| Water Softener                             | Litres / person / day       |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |                     | 0.00                |
| Calculated Use                             |                             | 98.6                |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     |
| Normalisation factor                       |                             | 0.91                |                     | 0.91                |                     | 0.91                |                     | 0.91                |                     | 0.91                |                     | 0.91                |                     | 0.91                |                     | 0.91                |                     | 0.91                |                     | 0.91                |                     |
| Total Consumption                          |                             | 89.7                |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     |
| Mandatory level                            |                             | Level 3/4           |                     | -                   |                     | -                   |                     | -                   |                     | -                   |                     | -                   |                     | -                   |                     | -                   |                     | -                   |                     | -                   |                     |
| External use                               |                             | 5.0                 |                     | 5.0                 |                     | 5.0                 |                     | 5.0                 |                     | 5.0                 |                     | 5.0                 |                     | 5.0                 |                     | 5.0                 |                     | 5.0                 |                     | 5.0                 |                     |
| Total Consumption                          |                             | 94.7                |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     | 0.0                 |                     |
| 17.K Compliance?                           |                             | Yes                 |                     | -                   |                     | -                   |                     | -                   |                     | -                   |                     | -                   |                     | -                   |                     | -                   |                     | -                   |                     | -                   |                     |