

M-EC Consulting Group

Land off Chalk Road, Higham



Energy Statement

July 2025



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1.0 Introduction

1.1 Purpose of the Report

Instructions were received from M-EC Consulting Group to produce an Energy Statement for a planning application at Chalk Road, Higham.

The application will be submitted in outline for the demolition of existing buildings and erection up to 40 residential dwellings, public open space and associated works. Approval is sought for the principal means of vehicular access from Chalk Road and all other matters are reserved.

This report has been produced to support the application to be submitted for the proposed development, which is situated within the boundaries of Gravesham Borough Council. This statement provides a response to the relevant Gravesham Borough Council documents and policies:

Gravesham Local Plan Core Strategy Adopted September 2014

- Policy CS01: Sustainable Development
- Policy CS19: Development and Design Principles

Design For Gravesham - Design Code Supplementary Planning Document May 2024

- Design principle 6.13 Energy efficiency and resilience

1.2 Site and Building Description

The development will be located on land off Chalk Road, Gravesham. The application will be submitted in outline for the demolition of existing buildings and erection up to 40 residential dwellings, public open space and associated works. Approval is sought for the principal means of vehicular access from Chalk Road and all other matters are reserved.

A proposed site location plan and illustrative masterplan has been included in Appendix 1.

1.3 Methodology

Applicable policies relating to energy and carbon performance have been identified from the relevant bodies, in this case, Gravesham Borough Council.

Given the nature of the application to be submitted is in outline, an initial assessment has been made against these policies where possible, with guidance and targets being highlighted for the point of reserved matters when designs have been established.

An assessment has been completed to review the potential connection of the proposed development to an existing district heat network. Up to date map data has been provided by the Department for Energy Security & Net Zero Heat Networks Planning Database, to enable the suitability and distance in relation to the location of the proposed development from a low carbon network be reviewed.

In relation to the Part G water requirements, a proposed sanitaryware specification has been assessed against the 110 litre/person/day limit outlined in the building regulations requirements.

2.0 Planning Policy

2.1 Gravesham Local Plan Core Strategy - Adopted September 2014

Policies CS01: Sustainable Development and Policy CS19: Development and Design Principles have been determined to be the relevant policy for this statement. The *Design For Gravesham - Design Code Supplementary Planning Document May 2024*, *Design principle 6.13 Energy efficiency and resilience* criteria has also been referenced as relevant.

2.2 Policy CS01: Sustainable Development

- 4.1.6 *Planning applications that accord with the policies in the development plan for Gravesham will be approved without delay, unless material considerations indicate otherwise.*
- 4.1.7 *When considering development proposals, the Council will take a positive approach that reflects the presumption in favour of sustainable development contained in the National Planning Policy Framework and in this Core Strategy. It will work proactively with applicants jointly to find solutions which mean that proposals can be approved wherever possible, and to secure development that improves the economic, social and environmental conditions in the area.*
- 4.1.8 *Where there are no policies relevant to the application or relevant policies are out of date at the time of making the decision then the Council will grant permission unless material considerations indicate otherwise, taking into account whether:*
 - *Any adverse impacts of granting permission would significantly and demonstrably outweigh the benefits, when assessed against the policies in the National Planning Policy Framework taken as a whole; or*
 - *Specific policies in that Framework indicate that development should be restricted.*

Water Demand Management

- 5.14.41 *The Council will seek to manage the supply of water in the Borough and reduce the impact of new development on the supply of potable water as much as possible. In particular, the Council will:*
 - *Require all new homes to be built to at least level 3/4 of the Code for Sustainable Homes in terms of water use (105 litres per person per day consumption). Where it can be demonstrated that a development is unable to meet these standards, or the additional standards set out below, permission will only be granted if provision is made for compensatory water savings elsewhere in the Borough;*
 - *Seek 5% of homes on Key Sites to act as exemplars by meeting level 5/6 of the Code for Sustainable Homes in terms of water use (80 litres per person per day consumption);*
 - *Require all non-residential developments of 1,000 sq m and above to meet the BREEAM "excellent" standards of water efficiency and include provision for the collection of rainwater; and*
 - *Support proposals to retrofit existing residential properties in ways which reduce water consumption.*

Carbon Reduction

- 5.14.42 *The Council will seek to reduce the overall carbon footprint of the Borough. In particular, the Council will:*
 - *In the context of national policy on the transition to zero carbon development via amendments to Part L of the Building Regulations, require proposals for development of the Key Sites throughout the Borough and other major development elsewhere in the Gravesend Town Centre Opportunity Area to consider the potential and include proposals for low carbon and renewable energy generation, including combined heat and power. Where choosing not to do so, applicants must submit evidence which*

demonstrates that compliance is not technically or financially feasible or that improved fabric energy efficiency or an allowable solution results in improved carbon saving benefits;

- *Support stand-alone decentralised, renewable or low carbon energy development where it is compatible with national policies for protecting the Green Belt and where it accords with policies in this plan, in particular those relating to Development and Design Principles, Transport, Green Infrastructure, and Heritage and the Historic Environment; and*
- *Support other proposals which lead to a reduction in carbon footprint including the retrofitting of existing homes and businesses, including local initiatives based on carbon off-setting via allowable solution*

2.3 Policy EM2: Building Standards

5.15.14 *New development will be visually attractive, fit for purpose and locally distinctive. It will conserve and enhance the character of the local built, historic and natural environment, integrate well with the surrounding local area and meet anticrime standards. The design and construction of new development will incorporate sustainable construction standards and techniques, be adaptable to reflect changing lifestyles, and be resilient to the effects of climate change. This will be achieved through the criteria set out below:*

...

- *The design and layout of new development will take advantage of opportunities to build in resilience to the effects of climate change. This will include protection against flood risk, where relevant, delivering carbon reduction, provision for low carbon and renewable energy, and minimising energy consumption and water use;*
- *New development will incorporate appropriate facilities for the storage and recycling of waste*

2.4 Design for Gravesham - Design Code Supplementary Planning Document May 2024

Design principle 6.13 Energy efficiency and resilience

- New developments must create buildings and spaces that reduce their environmental burden and the long term financial burden for occupiers.*
- Applicants must demonstrate they have maximised energy efficiency of their proposals by using aspect, orientation and design elements to help reduce heating and lighting needs.*
- Applicants must consider the effects of climate change specifying robust landscape, materials and infrastructure that can help the building future climate adaptation, thereby making development climate resilient.*
- Developments must adopt a “fabric first” approach to reduce their energy demand before integrating renewable alternatives.*
- Proposals should take into account Gravesham’s Climate Change Strategy.*
- Applicants should create flexible and adaptable buildings using construction methods that could enable future alterations.*
- Applicants should demonstrate they have maximised water efficiency of their proposals through water efficient infrastructure, harvesting of rainwater and re-use of grey water in line with current Building Regulations.*
- Proposals should introduce low and zero carbon decentralised energy generation infrastructure where viable. Where it is currently unviable, the introduction of infrastructure to aid future installation should be considered.*
- Applicants should demonstrate they have integrated or considered the sustainability of the construction process and off-site construction methods.*

3.0 Policy Response

3.1 Energy Efficiency and Carbon Emissions

3.1.1 Energy Efficiency

The nature of the application for the development at Land off Chalk Road, Higham is limited in outline at this stage, as a result, aspects of the design and service strategies have not been established. Despite this, there is an emphasis from the project team to highlight the importance of an energy efficient strategy, which demonstrates a reduction in the overall carbon emissions associated with the day-to-day operation.

Table 1 demonstrates how a current outline specification of the development at the development would compare to the limiting values and minimum efficiencies allowed within Part L 2022:

Table 1: Proposed Specification

Building Element	Limiting Part L 2022 Specification	Outline Part L 2022 Specification
External Walls U-Value	0.26	0.19
Roof U-Value	0.16	0.09
Ground Floor U-Value	0.18	0.12
Window U-Value	1.60	1.20
Party Wall U-Value	0.20	0.00
Pressure Test	8.00	5.00
Lighting Lumens	75 lm/w	80 lm/w

The development will be required to adopt a 'fabric first' approach to specification, and as detailed above, the proposed U-Values will demonstrate an improvement on the limiting requirements under Part L.

All of the main building elements will be designed to provide a thermally efficient building envelope that achieves an improvement on the minimum requirements set out within Part L. Insulated walls, roof, floors and openings will provide a comfortable environment within each dwelling and reduce the buildings' reliance on the main heating system in operation.

Intelligent construction methods and a high quality of specification will be utilised in the design. The use of high-performance thermal bridge details and more onerous air permeability targets will ensure that thermal performance is enhanced by minimising heat and energy losses through thermal bridges and air gaps.

The development at the Land off Chalk Road will comply with the Part S Building Regulations. This requires new homes and existing homes undergoing large renovations (of 10 or more dwellings) to have facilities for charging electric vehicles at each dwelling. Therefore, in order to comply with these new regulations each dwelling will have at least one installed vehicle fast charging (7-22kW) EV charging point.

To summarise, all of the main building elements outlined in Table 1 have been outlined to provide a thermally efficient building envelope that achieves an improvement on the minimum requirements set out within Part L. These elements when combined with efficient mechanical and electrical services, achieve an improvement on the minimum requirements set out within Part L1A 2022 and ensure enhanced energy efficiency and reduce CO₂ emissions, thus mitigating the impacts of climate change. Due to this being an outline application, the proposed values may be subject to change, nevertheless compliance with the Part L will be maintained.

3.2 Building Orientation & Climate Change Resilience

The development will be planned, designed and built in a way that adapts to changing climate conditions.

Passive solar design enhances the energy and environmental performance of a building. As this application is submitted in outline, there are limited design aspects completed at this stage. The proposed dwellings however will be considered so are oriented in a way they benefit from passive solar heating. The location confirms that any resultant dwellings will not be significantly shaded by surrounding buildings. It will be ensured in design that there will be sufficient space between the buildings so that overshadowing will not be an issue, and there will be significant potential for solar gain.

It is envisaged a traditional form of construction will be adopted, as such, there will be presence of high thermal mass and good insulation levels in this proposed scheme, providing an effective medium for managing solar gains, both having the ability to both hold heat and cool.

A high level of thermal mass further means dwellings can absorb excess heat throughout the day, keeping the surrounding area cooler, and then slowly release and re-radiate the stored heat as the temperature drops. This prevents rooms from becoming uncomfortably hot in summer and stores warmth in winter.

It is envisaged the proposed dwellings will have associated gardens providing green amenity space for residents. Green infrastructure has the potential to reduce the risk of heat island effect, acting as a heat soak for the scheme.

Although an outline application, it is currently expected that compliance will be achieved through a combination of passive measures and ventilation to ensure Part O, overheating compliance.

3.3 Low Carbon Heat Networks

3.3.1 Combined Heat and Power and District Heating

An exercise has been completed reviewing the proposed development to connect to an existing low carbon heat network. The Department for Energy Security & Net Zero Heat Networks Planning Database has been reviewed to confirm the closest possible connection point.

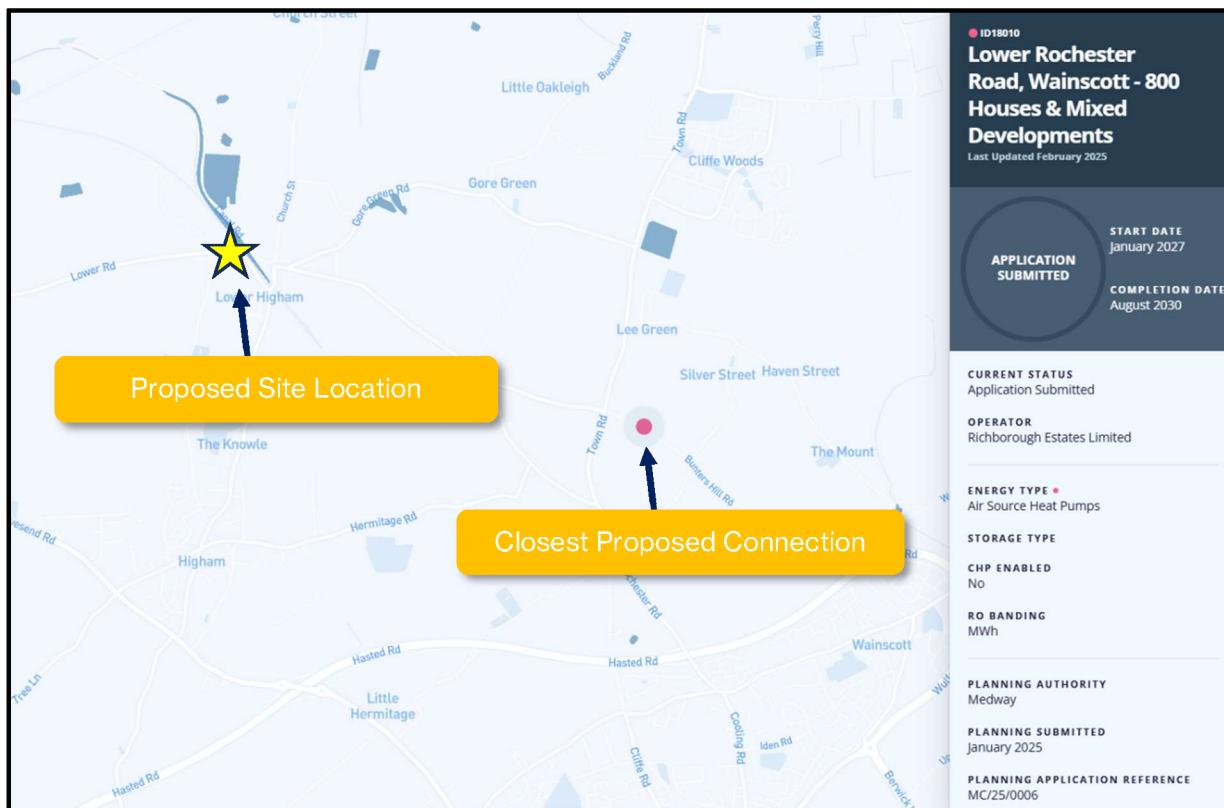


Figure 1 - Department for Energy Security & Net Zero Heat Networks Planning Database

As demonstrated in Figure 1, there are currently no feasible heat networks in the area, an application has been submitted for a new network at Lower Rochester Road, but is not due to be completed until August 2030.

At the point of reserved matters, it is encouraged a further review of available low carbon heat networks be completed, to understand if there are any new connection opportunities available. These are to be evaluated in terms of viability for the scheme.

Whilst the application will be submitted in outline, a review of Combined Heat and Power (CHP) systems has also been completed for viability. CHP systems are best suited to applications whereby there is a constant and continuous demand for heating and other electrical means. The nature of the development is residential, as a result there will be intermittent loads and demands for power, with requirements slowing down during the overnight hours. Heating demands will also fluctuate seasonally, with those requirements reducing in summer months and peaking in winter months.

Given the site context and operational profile of the proposed dwellings, it is concluded that neither connection to an existing network nor the installation of a CHP system would represent a feasible or appropriate solution for this development at present time.

3.4 Renewable Energy Sources

The developer's preferred strategy is to promote the first element in line with the energy hierarchy, and reduce the development's carbon footprint by use of efficient fabric. A review of appropriate renewable technologies will be completed at the next stage of design, to understand initially which technologies would be feasible to the site location, and the viability of incorporating them into the proposals.

3.5 Water Efficiency

In order for the development to meet the Policy CS01 requirements relating to water efficiency, it is proposed that planned water usage does not exceed the target of 105 Litres/person/day. Through the reserved matters application, the development at Land off Chalk Road, Higham, 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 demonstrated in Table 2 below, whilst the final flow rates of individual sanitaryware items may change as detailed design progresses, water conservation will continue to be prioritised. The Part G Calculator giving a more detailed breakdown of flow rates is available in Appendix 3.

Table 2: Proposed Sanitaryware Specification Flow Rates

Component	Water Usage
WCs	4.5 Litres (Full Flush Volume), 3 Litres (Part Flush Volume)
Bath	155 Litres
Showers	9 Litres/Minute
Wash-hand basin taps	5 Litres/Minute
Kitchen taps	6 Litres/Minute
Washing Machine	5 Litres / kg
Dishwasher	1.25 Litres / Place Setting
Calculated Use	104.5 Litres/person/day

This proposed specification provides a calculated estimated water use of 104.5 Litres/person/day. This is below the target requirement of a maximum 105 Litres/person/day.

3.6 Sustainable Construction

3.6.1 Material Selection

The new development will strive to incorporate sustainable design into the dwellings. 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.

Whilst specific materials will be determined at a later stage of the project, consideration will be given to prioritising a reduction in carbon emissions through the procurement strategy. Namely, the use of recycled materials or low carbon options will be considered where feasible to the construction efforts, rather than defaulting to wholly new materials at each opportunity. Furthermore, where aggregates are to be used, the procurement of secondary aggregates will be assessed in terms of viability to the design.

Where possible, the development will look to source building materials from local suppliers. Through this approach, delivery materials will be transported lesser distance, reducing the associated CO₂ emissions and fuel use of delivery loads. Similarly, where feasible contractors and site personnel required will be selected who are local to the site to aid the construction efforts. This again will reduce the associated CO₂ emissions of travel, in addition to supporting the local economy.

3.6.2 Waste and Recycling

In efforts to reduce waste throughout the construction process, as part of the design development, the resultant design team will implement a number of measures to eliminate potential waste.

The contractor will be required to have an effective site waste management system adopting waste hierarchy principles of reduce, reuse, or recycle.

All waste will be required to 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. A target will be set for the contractor in terms of reduction of waste that is taken to landfill that will be an improvement on standard market practices, and they will be expected to demonstrate compliance with this. Site hoarding or materials where safe and appropriate will be transported from other sites for reuse.

The design of the dwellings will look to incorporate recycling facilities for residents further encouraging the principles of recycling. Gravesham Borough Council operate an alternative collection for refuse waste & recycling waste, allowing for residents to segregate waste types in a more sustainable manner. To enable efficient segregation of operational waste for their residents, sufficient spacings and access will be provided to enable waste bins to be collected in line with Gravesham Borough Council waste collection regime. The potential for on-site composting facilities for use on the garden areas will also be explored, subject to other requirements and considerations.

3.7 Embodied Carbon

It will be ensured that the resultant developer will be committed to reducing the embodied carbon emissions associated with this development. The design for the scheme will take a holistic approach to ensure sources of both embodied and operational carbon are minimised. For example, efficient heating and ventilation systems allow for lower operational carbon emissions while avoiding a substantial increase in embodied carbon.

Reducing consumption is the most effective tier of the waste hierarchy and features highly in tiered approaches to reducing embodied carbon.

In terms of design circularity, the dwellings will be designed for longevity. Demand for housing is highly likely to remain high for the foreseeable future, especially in the context of an increasing population. It is therefore reasonable that the circularity principle most closely followed should be building for longevity. The proposed development will be designed to stand for well in excess of 60 years which is the industry adopted norm. Through robust materials and a design aesthetic that holds broad appeal, the buildings should stand the test of time and serve the local community for a long time, thereby postponing end-of-life emissions and avoiding emissions that would occur as a result of redevelopment.

It will be ensured that the resultant developer will adopt a local procurement policy for which compliance demands that all construction materials are procured from manufacturers and suppliers based in the midlands. This removes the requirement for long distance journeys made by delivery drivers and the associated carbon emissions.

In summary, the proposed scheme will have a lower emissions intensity than many similar developments. This will be achieved by adopting good practice in design and ensuring a holistic approach to minimising sources of both operational and embodied carbon emissions.

4.0 Conclusion

This statement has reviewed the proposed development on land off Chalk Road, Higham, which consists of an outline planning application for the demolition of existing buildings and erection up to 40 residential dwellings, public open space and associated works. Approval is sought for the principal means of vehicular access from Chalk Road and all other matters are reserved.

This statement has demonstrated how the proposed scheme will fulfil the requirements of the existing planning policies and the requirements of the relevant Gravesham Borough Council documents.

Gravesham Local Plan Core Strategy Adopted September 2014

- Policy CS01: Sustainable Development
- Policy CS19: Development and Design Principles

Design For Gravesham - Design Code Supplementary Planning Document May 2024

- Design principle 6.13 Energy efficiency and resilience

The statement has highlighted that the scheme intends to adopt a good thermal envelope to minimise heat loss, which will drive energy efficiency in the proposed dwellings. This is in line with the Policy objective of promoting development which minimises carbon emissions and greenhouse gas emissions.

There will be an underlying commitment to operating under sustainable construction practices. The resultant developer will demonstrate this through prioritising the selection of sustainably sourced materials, minimising waste and promoting recycling throughout construction and into operation, and reducing embodied carbon by adopting a circular approach throughout design and construction.

A proposed compliant sanitaryware specification of 104.5 Litres/person/day has been provided. This is an improvement over the Building Regulations upper requirement of 105 Litres/person/day specified in Policy CS01. The client's commitments with regards to Sustainable Construction have also been detailed.

An anticipated compliant strategy has been put forward at this stage and it will be ensured the policy requirements listed will be maintained.



Appendix 1

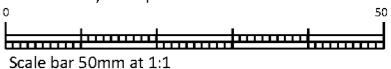
Proposed Illustrative Masterplan





NOTES

This drawing to be read in accordance with the specification/Bills of Quantities and related drawings. No Dimensions to be scaled from this drawing. All stated dimensions to be verified on site and the Architect notified of any discrepancies.



KEY

- Site Boundary
- Railway line
- Proposed access/egress for all modes (subject to detailed design)
- Proposed location of SuDs/Attenuation features
- Proposed Green Amenity Space (including existing pond, children's play provision, footpaths, community orchard and drainage)
- Proposed Residential Development
- Proposed area for unallocated parking
- *■ Focal space
- Recreational footpath
- Existing Trees
- Indicative proposed trees
- Proposed location for community orchard
- Proposed location for children's play



A 22.07.2025 MINOR AMENDMENTS FOLLOWING CLIENT COMMENTS. KB

Project

LAND OFF CHALK ROAD
LOWER HIGHAM
GRAVESEND

Title
ILLUSTRATIVE DEVELOPMENT
FRAMEWORK PLAN

Scale 1:1000 @ A3 Date JULY 2025
Drawn KB Checked MB
Drawing Number 8990/P103 Revision A

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Appendix 2

Part G Water Calculations





Job no:	R4514
Date:	July 2025
Assessor name:	Adam Revill
Registration no:	
Development name:	Chalk Road, Higham

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PRINTING: before printing please make sure that in "Page Setup" you have selected the page to be as "Landscape" and that the Scale has been set up to 70% (maximum)

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																		
Is a dual or single flush WC specified?		Dual		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?		Bath & Shower		Select option:																	
Bath	Capacity to overflow	155	17.05		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00		0.00
Shower	Flow rate (litres / minute)	9	39.33		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)	6	13.00		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:																	
Washing Machine	Litres / kg	5	10.50		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:																	
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?		No	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		109.3			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
Code for Sustainable Homes	Total Consumption		99.5		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
	Mandatory level		Level 3/4		-		-		-		-		-		-		-		-		-
Building Regulations 17.K	External use		5.0		5.0		5.0		5.0		5.0		5.0		5.0		5.0		5.0		5.0
	Total Consumption		104.5		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0		0.0
	17.K Compliance?		Yes		-		-		-		-		-		-		-		-		-