

Bloor Homes Limited & Pigeon (Hemel Hempstead)
Limited - November 2025



North Hemel Hempstead Outline Energy & Sustainability Statement



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01.Executive Summary

Overview of the proposed development and key results

Savills Earth has been appointed by Bloor Homes Limited (Bloor) & Pigeon (Hemel Hempstead) Limited (Pigeon) to prepare an Outline Energy & Sustainability Statement in support of the outline application for the development of North Hemel Hempstead. This Statement details the sustainability features of the proposed development and demonstrates how they relate to relevant planning policy guidance as listed below:

- National Planning Policy Framework (NPPF) (2024); and
- St Albans City and District Council Draft Local Plan 2041 (Regulation 19 Publication)

The development is conceived with a holistic sustainability approach, promoting economic growth, reducing carbon emissions through well-designed buildings, and strengthening community identity.

Energy & Carbon

The proposed development will be designed to comply with the Future Homes Standard (FHS). Following the FHS requirements

ensures new buildings meet high standards, use low-carbon heating, and are "zero-carbon ready". The development will follow the 'energy hierarchy' by adopting a 'fabric first' approach to reduce energy demand (Be Lean), utilising efficient systems that do not rely on fossil fuels (Be Clean), and integrating renewable energy sources (Be Green).

Water consumption

The development is targeting a maximum mains water usage of 110 litres/person/day through the use of water efficient fittings in line with local policies and Part G of the Building Regulations.

Flood risk

The site is situated in Flood Risk Zone 1, which indicates a low potential flooding risk. A sustainable drainage system (SuDS) strategy will comprise of permeable paving, swales, bioretention, and a drainage network that will direct surface water runoff to strategically located attenuation basins with sediment forebays. Discharge is anticipated to be via infiltration in

all cases.

Pollution

Noise and air pollution impact assessments have been conducted for the proposed development, with mitigation measures implemented where necessary. Overall, impacts towards air quality for future residents will be negligible and noise levels will be acceptable for the proposed homes and school locations.

Biodiversity & Ecology

The site aims to deliver extensive green infrastructure, including a community Park, allotments, and Suitable Alternative Natural Green Space (SANG), enhancing recreation and ecological connectivity. It will achieve at least 10% Biodiversity Net Gain through habitat creation and retention of hedgerows and trees, supporting species such as bats, badgers, and birds. These measures strengthen landscape character and promote sustainable living.

Transport

A transport assessment confirms negligible impacts during construction and operation, supported by careful traffic modelling and mitigation through the planned Sustainable Transport Corridor. The masterplan promotes sustainable travel via enhanced walking and cycling routes, public transport links, and a mobility hub, reducing car dependency and aligning with Hemel Garden Communities' vision for a connected, low-carbon neighbourhood.

Health & Wellbeing

The proposed development incorporates essential facilities that support the wellbeing and

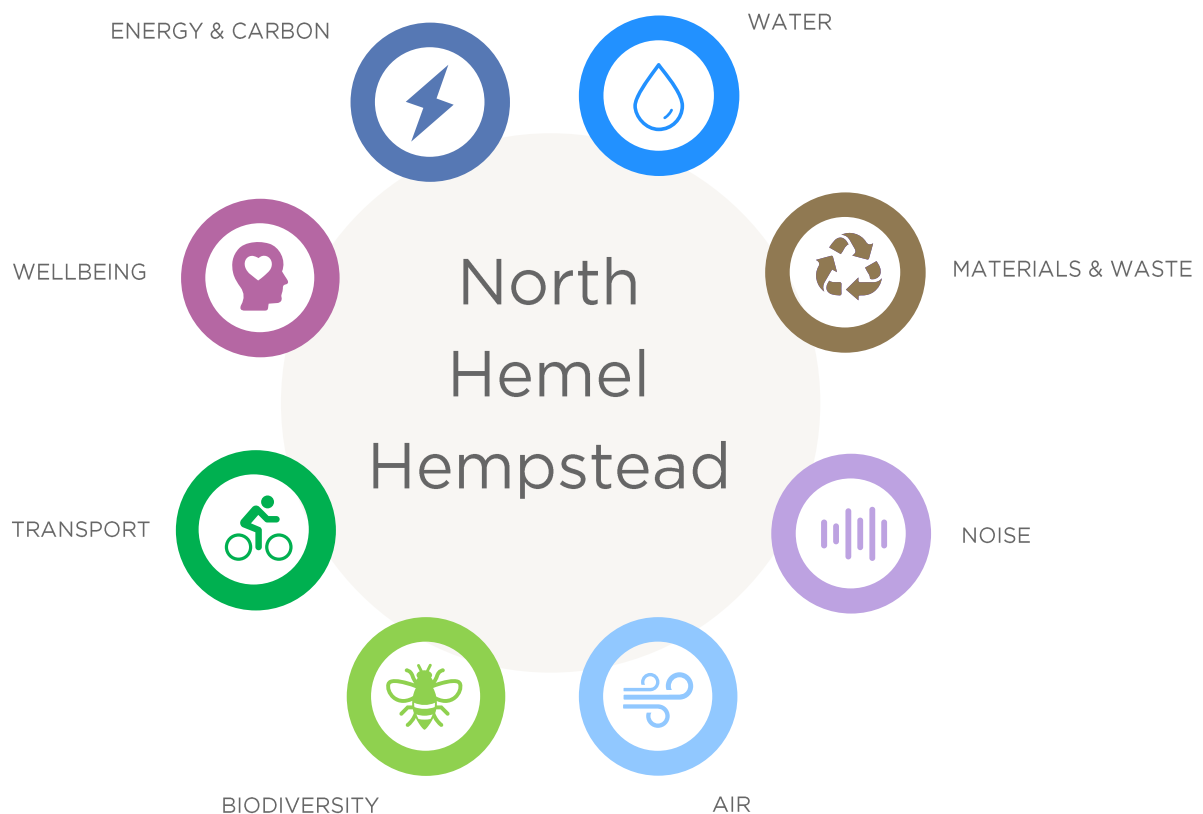
quality of life for future communities. The masterplan will include the following facilities:

- Play areas;
- Allotments and a community orchard;
- Three-form entry primary school;
- Specialist housing to accommodate older residents;
- Commercial spaces;
- Mobility hub that promotes sustainable modes of transport;
- Sports pitches; and
- Active travel routes

Materials & Waste

North Hemel Hempstead will adopt sustainable construction practices, focusing on good site management to enhance resource efficiency, increase material recovery, and avoid landfill disposal. Waste minimisation will be also promoted in all buildings, with dedicated and accessible waste storage areas for each dwelling. These areas will separate different waste streams, including general waste and recyclables, and encourage composting of organic waste through comprehensive recycling programs.

Key sustainable design aspects for the proposed development



02. Introduction

Short introduction and objectives of the report

Savills Earth has been appointed by Bloor & Pigeon to provide an Outline Energy and Sustainability Statement in support of the outline application for the development of North Hemel Hempstead; in line with the emerging local plan, national planning policy and relevant planning guidance.

This report describes the sustainability strategy proposed for the development that will facilitate the transition to a low-carbon future, and demonstrate how the design of the scheme it relates to applicable planning policy guidance as listed below:

- National Planning Policy Framework (NPPF) (2024); and
- St Albans City and District Council Draft Local Plan 2041 (Regulation 19 Publication)

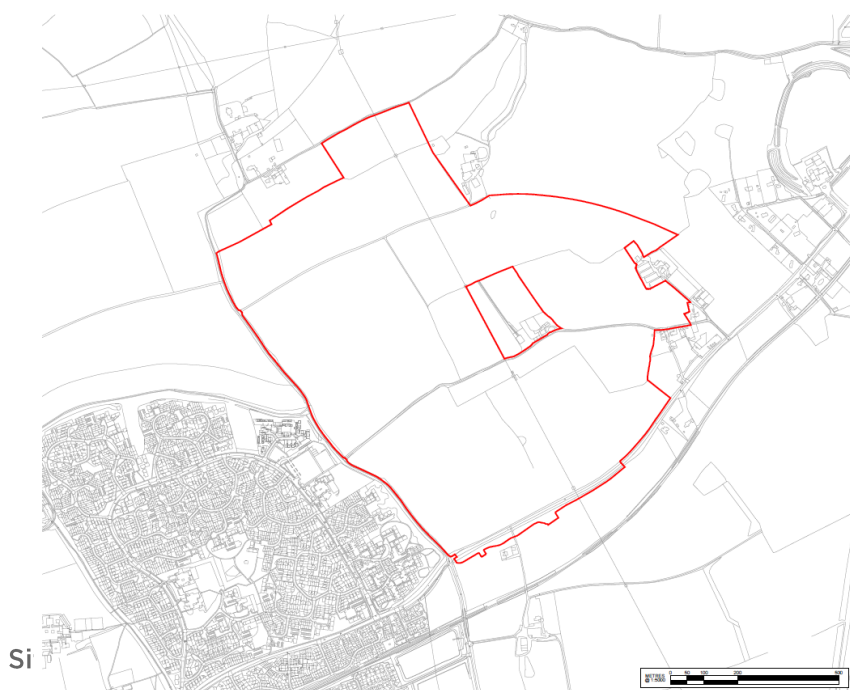
The description of the proposed development is as follows:

“Outline application for residential-led mixed use development comprising up to 1,500 new dwellings (including residential accommodation and specialist accommodation for older people)

(Use Class C3), a care home (Use Class C2), a 3FE primary school (including early years provision) (Use Class F1), a local centre, mobility hub, open space, amenity space, allotments, green infrastructure, sustainable drainage systems, vehicular and active travel routes, and supporting infrastructure and works. All matters reserved save for access from the B487.”

The 105.60 ha site is located north of the B487 (Hemel Hempstead Road / Redbourn Road) between the eastern urban edge of Hemel Hempstead and the village of Redbourn, approximately 4km north east of Hemel Hempstead's town centre, in the Local Authority of St Albans City & District Council (SACDC). The site lies immediately east and south of the administrative boundary of Dacorum Borough Council (DBC).

Site Location Plan



Report Objectives

- This report will demonstrate how the proposed development will meet the adopted sustainability standards set by The St Albans City and District Council Draft Local Plan 2041 (Regulation 19 Publication) planning policies and plan to deliver core aims of sustainability. The development will address key sustainability areas such as energy, health and wellbeing, landscape and biodiversity, flood risk, pollution, waste and materials and transport.

- Identify areas for consideration at the early stages of this project to facilitate the incorporation of the principles of sustainable design and construction into the later stages of the proposed development.

Additional details will be provided during subsequent Reserved Matters applications.

Illustrative Masterplan of the proposed site



03. Planning context

Outlining planning context and requirements

National Planning Policy Framework (December 2024)

The National Planning Policy Framework sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally prepared plans for housing and other development can be produced. At the heart of the NPPF is a presumption in favour of sustainable development. Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives).

An economic objective

To help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure.

A social objective

To support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations; and by fostering a well-designed and safe built environment, with accessible services and open spaces that reflect current and future needs and support communities' health, social and cultural well-being.

An environmental objective

To contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating adapting to climate change, including moving to a low carbon economy.

This climate change and sustainability statement has been developed following the NPPF requirements.



Local Plan Review

St Albans District Council is currently undertaking a Local Plan Review. The **Draft Local Plan 2041 (Regulation 19 Publication)** was published in September 2024 and contains the following draft policies of relevance:

Strategic Policy SP2 – Responding to the Climate Emergency

The Council recognises the urgent need to respond to climate change through mitigation and adaptation. The Council will support proposals that help combat climate change where the proposals:

- a) Demonstrate mitigation and adaptation to climate change, including pursuing the reduction of whole life-cycle carbon emissions (both operational and embodied);
- b) Prioritise the development of previously developed land;
- c) Are designed to improve resilience to climate change, including resilience to increasing temperatures, more frequent drought, more intense storms and wind speeds and heavy rainfall events;
- d) Use the most sustainable locations for growth and so minimising the need to travel while encouraging walking, cycling and the use of public transport;
- e) Provide on-site renewables, high standards of energy efficiency, and low carbon energy;
- f) Prioritise the use of sustainable

and active modes of travel in new and existing developments;

- g) Deliver biodiversity net gain;
- h) Mitigate increasing flood risk;
- i) Include Sustainable Drainage Schemes (SuDS) where appropriate;

j) Demonstrate tree planting;

k) Combine environmental payments through stacking different types of credits on sites (e.g. carbon, biodiversity, Suitable Alternative Natural Green Space (SANG) etc) where appropriate.

CE1 - Promoting Sustainable Design, Construction and Building Efficiency

New buildings should be designed and constructed to ensure efficient use of energy, water and materials. Energy efficiency and reduced use of energy within buildings is a key component to reducing greenhouse gas emissions within the District. Applicants must demonstrate sustainable design and construction and a high degree of resource efficiency through evidence supporting planning applications, to a degree proportionate to the proposal, through:

- a) Ensuring all new build development minimises the carbon, pollution and energy impacts of their design and construction. Proposals must demonstrate that they are seeking to limit greenhouse gas emissions through location, building orientation, design, landscape and

planting, taking into account any nationally adopted standards;

b) Including water conservation, greywater recycling and storage facilities to reduce household water consumption to under 110 litres per person per day including external water use, and new development to include rainwater harvesting;

c) Retrofitting of existing buildings to improve energy and water efficiency and improve long term resilience to a changing climate;

d) Adopting sustainable construction and demolition methods including using materials with low embodied carbon that are sustainably sourced, and the re-use and recycling of demolished material from the development site;

e) Minimising waste during the construction and operation phases of development by using the circular economy approach; and

f) Including Sustainable Drainage Systems (SuDS) in new developments as well as the potential for retrofit SuDS for existing buildings.

CE2 - Renewable and Low Carbon Energy

The Council seeks to increase the use of renewable and low carbon energy in the District.

- a) Development proposals must demonstrate, where appropriate, that the use of renewable or low carbon energy has been maximised.

b) Major development proposals must set out at the planning application stage how they will make use of renewable or low carbon energy within the site through submitting and agreeing an Energy Statement with the Council. Agreed measure will be secured through conditions;

c) The Council will support a range of low carbon and renewable energy solutions including, but not limited to, the following:

i. Solar power, including photovoltaic panels, solar thermal heaters, and maximising passive solar heating through south facing designs;

ii. Wind turbines at different scales;

iii. Decentralised District Heating and Energy Networks; and

iv. Heat Pumps.

d) To maintain the public benefits of renewable power, proposals which overshadow existing solar panels should be avoided and/or mitigated.

Strategic policy SP10 – Natural Environment, Biodiversity and Green and Blue Infrastructure

The Council will protect and enhance green and blue infrastructure for its role in combating Climate Change and supporting biodiversity, along with its value for recreation, health and wellbeing, and landscape value.

The Council will support the overall aims and objectives of the Local Nature Recovery Strategy as it applies to SADC. Tree planting and tree care in both rural and urban locations is a priority for the Council and will be required as part of new developments. The Council will support proposals that ensure the protection and improvement of the District's green infrastructure and the wider natural environment, where the proposals:

a) Connect to existing green infrastructure assets including opportunities to enhance connections and extensions to Public Rights of Way and other rights of way used by the public, where appropriate;

b) Explore opportunities to add to the District's green infrastructure,

including key linear green spaces;

c) Avoid the loss, fragmentation or reduced functionality of green infrastructure and restore them within a development site where practical;

d) Contribute towards local green infrastructure projects via planning obligations, where appropriate;

e) Secure provision of long-term maintenance through Section 106 agreements, including for Green Belt Compensatory Improvements (see Chapter 3);

f) Make appropriate contributions towards the Strategic Access Management and Monitoring Strategy (SAMMS), where the proposal is for additional housing within the Chilterns Beechwoods Special Area of Conservation (CBSAC) Zone of Influence (ZOI). Such development proposals will also need to make provision for a new Suitable Alternative Natural Greenspace (SANG), or alternatively contribute towards the maintenance of a suitable SANG project elsewhere; and

g) Have regard to the Hertfordshire Green Infrastructure Strategy.



NEB6 – Biodiversity and Biodiversity Net Gain

Proposals that are likely to impact on protected designated areas and species of national and local importance for biodiversity must:

- a) Undertake an ecological assessment for the planning application. Proposals will be refused if there are adverse impacts to any of the following:
 - i. Sites of Special Scientific Interest;
 - ii. Nature Reserves (international, national, regional and local);
 - iii. Any other sites of wildlife, geological or geomorphological importance,;
 - iv. Irreplaceable habitats;
 - v. Any site supporting species protected by UK or European law;
 - vi. The natural hydrology of both surface or ground water levels and flows affecting ponds, in river valley floodplains and their other associated wetland features and habitats.
- b) Apply the mitigation hierarchy and in addition provide Biodiversity Net Gain;
- c) Ensure ecological benefits through planning, guided by advice from Hertfordshire Ecology, Herts and Middlesex Wildlife Trust, and data from the Herts Environmental Records Centre (HERC) or their successors;
- d) Take opportunities to link or

reconnect fragmented wildlife habitats;

- e) Provide green infrastructure in new developments;
- f) Make use of on-site beneficial features to improve biodiversity such as SuDS bird boxes, bat boxes, hedgehog highways, hibernacula and insect houses. Off-site initiatives supporting biodiversity will be through environmental land management schemes;
- g) Take opportunities to provide above ground Sustainable Drainage Systems (SuDS) where appropriate; and
- h) Support the overall aims and objectives of the Local Nature Recovery Strategy. Biodiversity Net Gain In line with national guidance, development should provide a net gain in biodiversity. Relevant development proposals must ensure that they:
 - i. Meet a minimum 10% net gain in biodiversity that is calculated using the latest Biodiversity Metric from Government guidance and is approved via a Biodiversity Gain Plan. Off-site habitat creation and / or enhancement contributions will be allowed only where on-site is not possible or desirable and these should be within the District wherever possible. Payments in lieu of the national statutory biodiversity credit scheme will only be allowed in exceptional circumstances; and
 - ii. Secure long-term management and maintenance

(at least 30 years) for existing and new biodiversity, including any net gains, through Section 106 agreements and conservation covenants. Where possible, higher than 10% net gain in biodiversity on site is strongly encouraged.

St Albans District Council's Validation Checklist for Outline Planning Applications

This should cover:

- What measures have been/will be taken to reduce the energy demand associated with your proposed development beyond the minimum required in Building Regulations.
- What measures have been/will be taken to limit the carbon consumed through the implementation and construction processes, e.g. by reusing existing on-site materials, sourcing materials locally or adopting more sustainable construction methods.
- What measures have been/will be taken to utilise renewable or low carbon energy sources.
- What measures have been/will be taken to reduce potential impacts of flooding associated with your proposed development.
- What measures will be taken to promote biodiversity in your proposed development.

04. Outline energy strategy

Energy strategy, passive & active design measures

The energy strategy outlined below sets out the proposed approach for the scheme for both domestic and non-domestic buildings, with additional detail to be provided through the subsequent reserved matters applications.

The proposed strategy aligns with the written ministerial statement dated 13th December 2023 and will seek to adopt the Future Homes Standard (FHS), the future national requirements for 'net-zero ready' buildings. This approach supports the government's commitment to ensuring that any energy requirements beyond national standards remain viable and affordable for developers. The FHS focuses on integrating low-carbon heating systems, enhancing energy efficiency, and improving building fabric performance to ensure homes are future-proofed against climate change.

Energy hierarchy

The design aims to promote energy-efficient building designs and technologies in residential and commercial properties. The energy strategy for the proposed scheme will follow the following energy hierarchy – be lean, be clean, and be green, as per the image below. This approach prioritises reducing energy demand initially through passive and energy-efficient design (Be Lean). The next step is to provide the necessary energy as cleanly and efficiently as possible (Be Clean). After minimising the energy consumption of the development as much as feasible, renewable energy sources are used to generate renewable energy onsite (Be Green).

Passive design measures

Passive design targets energy demand reduction, by giving priority to the optimisation of the

building fabric to reduce the need for energy use in the first instance ('fabric first' approach).

This approach combines the benefits of a highly-performing building fabric, natural ventilation, optimal façade design, and the use of thermal mass, to reduce energy demand in the first instance. Key features are provided below:

1. Orientation & massing

Orientation and massing are critical aspects being considered in this masterplan proposal, maximising the opportunity for development of south-facing buildings and external amenities. These issues affect energy efficiency, sustainability, visual appeal, and the overall experience of the development. By carefully considering these factors, the scheme delivered can be functional, sustainable, contextually responsive, and visually appealing.

The energy hierarchy



Outline energy strategy

contributing positively to the built environment.

2. Glazing ratios & solar control

The façade design of the buildings will consider orientation and window positioning to provide adequate levels of daylight without compromising the thermal comfort of the occupants.

The proposed buildings will consider the specification of solar control glazing with a light transmittance that provides a good balance between reducing the summertime solar gain, whilst maintaining useful heat gains during winter.

Passive solar gain will also be considered through the site layout of the masterplan, where careful consideration will be given to landscaping and massing to provide shading from overheating in the summer, whilst allowing for passive solar gains in the winter.

3. Natural ventilation

Façade designs will incorporate openable elements to allow for cross ventilation, wherever possible, to mitigate overheating risk and reduce mechanical ventilation requirements. Window design will be considered throughout in order to limit excessive solar gain and minimise the risk of overheating.

4. Thermal performance and air tightness

The fabric performance of the buildings in the proposed scheme will be designed to follow the Future Homes Standard regulations. Recommended fabric design targets can be found in the table below- this provides performance targets to minimise energy demand.

The air permeability will be reduced to help minimise the heat loss through infiltration.

Achieving an airtight building requires meticulous attention to detail during the design phase, as well as careful monitoring of the construction process and workmanship on site. Thermal bridges within the overall building fabric will be addressed by ensuring continuous insulation layers, which will help minimise air leakage through the envelope. All joint details of the building will be designed in accordance with the FHS requirements.

Details of fabric performance recommendations (Future Homes Standard)

Space type	Value for domestic buildings (Options 1&2)	Value for non-domestic buildings
External walls	0.18 W/m ² .K	0.26 W/m ² .K
Ground floor	0.13 W/m ² .K	0.18 W/m ² .K
Roofs	0.11 W/m ² .K	0.18 W/m ² .K
Windows	1.2 W/m ² .K Double glazing	1.6 W/m ² .K Double glazing
Doors	1.0 W/m ² .K	1.3-1.4 W/m ² .K
Air permeability	≤ 5 m ³ /h.m ² @50 Pa	≤ 8 m ³ /h.m ² @50 Pa
Thermal bridges	y-value: 0.05 W/m ² .K	

Active design measures

The proposed active systems will be designed to be energy efficient with effective controls to minimise the energy consumption of the buildings in use, domestic and non-domestic. The FHS has proposed two options for HVAC specifications in homes, designed to minimise energy bills for occupants. Option 1 is the most cost-effective choice, maximising carbon savings and reducing energy expenses. Option 2 represents a minimal approach to achieve 'zero-carbon ready' homes. Further details can be seen in the table below.

1. Space heating and Domestic Hot Water (DHW)

Once energy demand has been reduced as much as possible, space heating and domestic hot water will be delivered via all-electric systems, such as heat pumps, eliminating the use of fossil fuels from the site in line with FHS requirements.

The FHS also encourages the use of low-carbon district heating networks (DHNs) as a key strategy for reducing carbon emissions in new developments. It has been determined, however, that a DHN is not suitable for this project. To be efficient and low carbon in operation, DHNs require either sources of waste heat from suitable non-domestic uses (which are not present for this site) or high-density development to minimise heat and pumping losses. These losses occur because long pipe runs dissipate heat to the ground and require additional

pumping energy, reducing overall system performance. As a result, DHNs can be less efficient and more carbon-intensive than building-level solutions. In contrast, all-electric individual building solutions align with national decarbonisation policy, use existing infrastructure, and offer futureproof flexibility without additional investment.

The most suitable energy strategy solution will be detailed in the subsequent reserved matters planning submission, but the current strategy is to utilise an all-electric, fossil fuel-free, system with heat pumps for both heating and hot water.

The use of waste-water heat recovery (WWHR) systems will be investigated in blocks of flats, as they are likely to be more effective in this setting. The WWHR reuses heat from wastewater typically from showers, baths and sinks that is transferred to incoming cold water.

FHS recommends the implementation of WWHR systems if a building is designed to Option 1.

2. Mechanical ventilation

Proposed buildings could incorporate mechanical ventilation with heat recovery, achieving at least 80% efficiency and minimising duct lengths to reduce heat losses. Alternatively, natural ventilation will be prioritised with attention to the size and location of the openings to facilitate cross-ventilation.

3. Lighting

Lighting accounts for a significant portion of the overall energy use in buildings. Therefore, low energy lighting (i.e. LED) will be specified throughout, with occupant detection and daylight control (for non-domestic buildings), where possible. The FHS standard specifies light fittings with high efficacy with a minimum of 105 lm/W for both indoor and outdoor lighting.

Details of HVAC specifications (Future Homes Standard)

HVAC	Option 1	Option 2
Heating source	A notional air source heat pump equivalent to ErP A++	A notional air source heat pump equivalent to ErP A++
Hot water system	Hot water storage vessel, 120mm insulation	Hot water storage vessel, 120mm insulation
Waste water heat recovery	Yes	No
Ventilation	Decentralised mechanical ventilation system	Natural ventilation with extract intermittent extract fans
Renewables	High efficiency solar PV panels covering equivalent of 40% of ground floor area	None

4. Energy Monitoring

Consideration will be given to providing smart meters, system controls to operate the buildings effectively.

The installation of smart meters is supported by the FHS standard, as they provide various benefits for consumers and the energy market, serving as a key tool for energy management. This technology will be implemented primarily in homes, offering significant energy benefits for occupants.

5. Renewables

Opportunities to employ low and zero-carbon energy technologies will be investigated, to reduce the scheme's operational carbon emissions, regardless of the preferred specifications for the FHS specification options.

Considering the geometry, orientation and context of the masterplan, the following renewable energy technologies could be incorporated into the design:

- Heat pumps, either ground or air source;
- Communal heating systems; and
- Rooftop-mounted photovoltaic arrays for electricity generation.

Incorporating renewable energy sources, alongside enhanced energy efficiency measures, will substantially reduce carbon emissions, enabling buildings to achieve net-zero status as the national grid decarbonises.

6. Home User Guide

The FHS proposes to include additional information in the Home User Guide to help occupants operate their homes effectively. This will cover important details. The guide will also offer clear instructions on how to use hot water cylinders and thermal stores. To enhance accessibility and ensure the longevity of the Home User Guides, a digital copy will be preferred over a paper copy, which can be easily misplaced. Homeowners will be provided with information in a simple and

understandable manner, making it accessible to everyone.



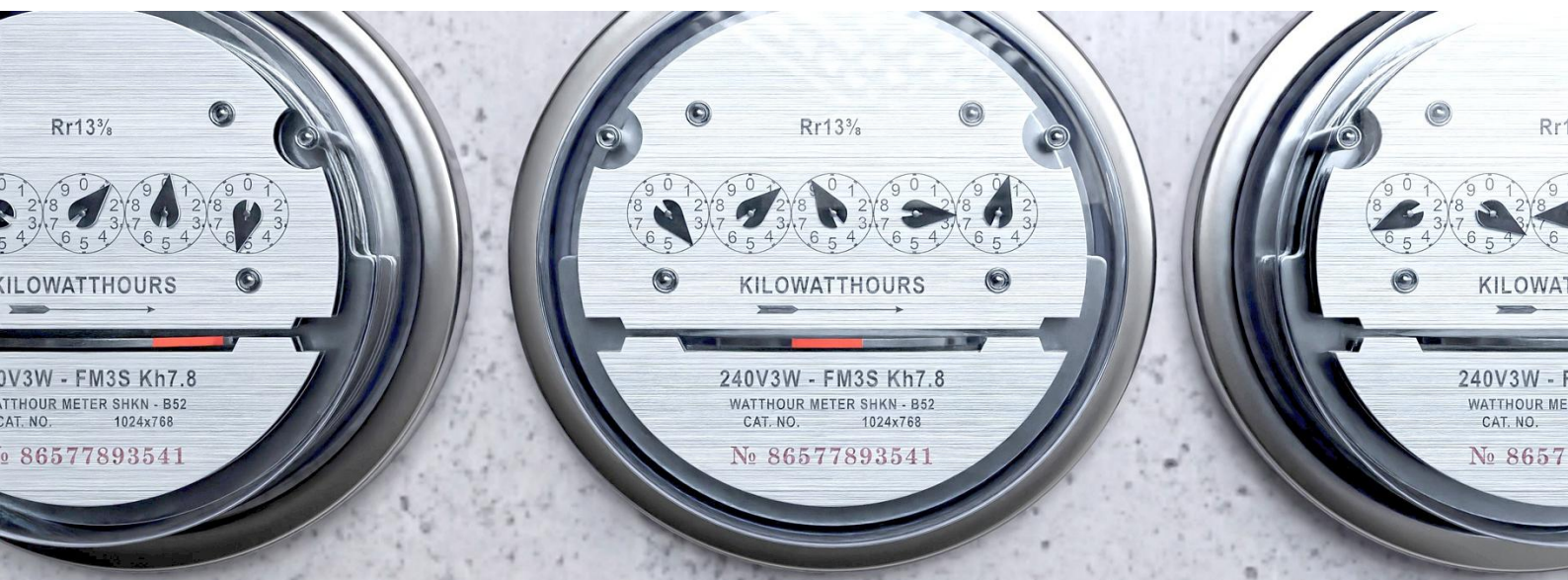
Summary

By reducing demand through passive design measures, utilising efficient systems, and integrating renewable energy sources, this scheme will be designed to comply with the Future Homes Standard requirements.

It is not possible to quantify this reduction due to the outline nature of this planning application. However, energy and carbon performance calculations will be provided as part of Reserved Matters applications, with the production of an energy model based on detailed drawings. Comprehensive energy calculations will be conducted using the most appropriate methodology for each building type.

For non-domestic buildings, the Simplified Building Energy Model (SBEM) or the Dynamic Simulation Model (DSM) will be utilised, while the Home Energy Model (HEM) will be applied for domestic buildings. These methodologies will align with the standards in effect at the time of the calculations.

Following FHS requirements ensures new buildings meet high standards, use low-carbon heating, and are "zero-carbon ready", meaning that no further work will be needed for them to have zero carbon emissions. Ongoing decarbonisation of the national grid will further decarbonise the development, with a national objective to provide 95% decarbonised electricity from 2030.



05. Climate change

Climate change mitigation and adaptation

Climate change, driven by human-induced greenhouse gas emissions, has complex effects, including:

- Increased average temperatures.
- Rising sea levels.
- Increased precipitation; and
- More frequent extreme weather.

Action to address climate change falls into two categories: mitigation and adaptation. Mitigation measures are designed to reduce greenhouse gas emissions to slow down or stop climate change, whilst adaptation measures are designed to adjust

society and buildings to cope with climate change.

The proposed scheme will consider the following climate change mitigation and adaptation features.

Climate change mitigation

As stated earlier, the energy strategy of the scheme will consider multiple measures in line with the energy hierarchy to mitigate the effects of climate change through the specification of passive design, energy-efficient systems and low and zero carbon technologies. The measures mitigate energy use in the first instance and then provide a significant proportion of the

estimated resultant energy use via renewable energy sources.

These actions aim to eliminate fossil fuel usage on-site and decrease greenhouse gas emissions. CO₂ emissions from the buildings will be reduced to comply with the upcoming Future Homes Standard, deemed the most suitable standard for the project.

In addition to the measures related to regulated energy described in the previous section, further energy-saving measures will be implemented for unregulated energy, such as specifying energy-efficient white goods.



Climate change adaptation

Alongside energy conservation and carbon emission savings, the sustainability strategy for the scheme will include measures to adapt to the effects of climate change through an optimised design to mitigate the risk of overheating. The Cooling Hierarchy approach will be followed to promote passive design and avoid active cooling. Measures to reduce overheating risk will be considered in depth during detailed design, but are likely to include:

- The building's facades could have a limited amount of glazing to mitigate direct solar heat gain while optimising daylight penetration.
- The use of balconies and overhangs will provide solar shading to residential buildings.
- Window recesses can provide additional solar shading.
- Solar control glazing could be used to limit solar gain, enabling high light transmittance which contributes to good internal daylight (therefore reducing artificial lighting).
- Heat gain from lighting will be kept to a minimum as a result of an energy-efficient lighting design solution.
- The proposed heating strategy is to use heat pumps for heating and hot water, although this will be confirmed at a later stage. This is a low temperature distribution system, leading to lower internal heat gains from

distribution pipework.

- Year-round fresh air could be provided through the specification of mechanical ventilation units with heat recovery. The systems should be specified with a summer bypass on the heat recovery element to ensure that unwanted heat is purged where possible.
- External planting is at risk during periods of drought. In response to this risk, all planting specified should be restricted to contextually appropriate species that thrive with little irrigation and will continue to do so in those conditions likely as a result of climate change.

Hotter, drier summers also introduce the risk of water shortage and drought. The proposed scheme will protect the quality and quantity of water while promoting efficient use. This will be accomplished by selecting efficient fittings and fixtures, along with necessary flow restrictors, to meet local planning policy and the Part G Building Regulations target (further details in Section 6).

Adapting to heavier rainfall and flood risk management

The predicted effects of climate change could increase the risk of surface water flooding due to changes in rainfall patterns. The Environmental Agency's flood maps and flood zones do not currently take into account the possible future climate change impacts, although it could be said that the potential extent of an

extreme flood shown on flood maps might in future become a more frequent occurrence as a result of climate change.

The site will adopt a robust, multi-benefit Sustainable Drainage Systems (SuDS) strategy that will help to protect the development from intense weather events. More details can be found in Section 6.

06. Flood risk, drainage and water

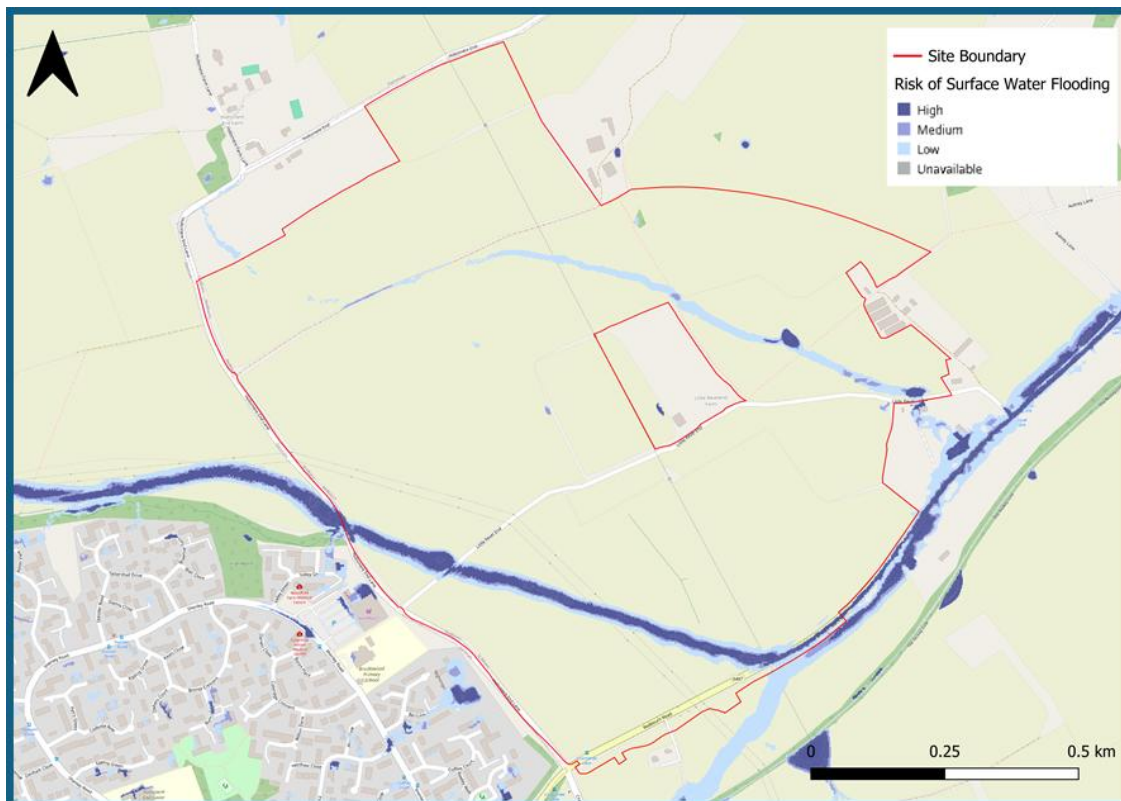
Understanding the impact of water on the proposed site.

Flood risk

A Flood risk, surface water and foul water drainage appraisal has been completed by WSP, which shows that the site is completely situated in Flood Risk Zone 1. This indicates that the site is at low or negligible risk from all sources of flooding with the exception of

surface water flooding which is generally low with the exception of the on-site dry valley where it is considered to be high.

Risk of Flooding from Surface Water



Sustainable drainage

As there will be an increase in impermeable area across the site, there will be an increase in the likelihood and magnitude of standing water and surface water runoff occurring. A surface water strategy has been devised to mitigate this.

The proposed drainage arrangement for the site will comprise of permeable paving, swales, bioretention, and a drainage network that will direct surface water runoff to strategically located attenuation basins with sediment forebays. Discharge is anticipated to be via infiltration in all cases.

Surface water runoff will be attenuated on-site for events up to and including the critical 1 in 100-year storm rainfall event with a 40% allowance for climate change prior to discharge. It is considered that the approach will not increase the risk of flooding elsewhere.

Overland flows associated with exceedance events will be directed to the on-site attenuation facilities by suitably designed overland flow routes to surface the proposed attenuation structures.

To ensure the effectiveness of the proposals a maintenance regime can be put in place to ensure the future performance of all the SuDS and drainage devices.

Based upon information provided within this report, it is concluded that the site is presented as

sustainable in terms of flood risk and compliant with the criteria set out in the NPPF. For further details, refer to the Flood Risk appraisal which accompanies this outline planning application.

Water Efficiency

Indoor water consumption will be minimised through the specification of water-efficient fittings to achieve the required water efficiency standard in accordance with local policy and Part G of Building Regulations requirements. The table on the side shows an example residential water usage calculation that complies with Part G requirements of 110 litres per person per day. Bloor and Pigeon are committed to achieving this water usage target for all dwellings. Extensive use of controlled flow restrictions and highly efficient white goods will be required to meet water requirements. Detailed specification on the water fittings will be provided at subsequent Reserved Matters applications.

Details domestic water fittings specification example (Building Regulations - Part G)

Fitting type	Flow rates	Daily usage	Total daily usage
Toilets dual-flush	3 litres (full) / 2 litres (half)	4 flushes/day	16 litres/day
Wash hand basin	3 litres	5 minutes/day	15 litres/day
Kitchen tap	3 litres	5 minutes/day	18 litres/day
shower	5 litres	5 minutes/day	25 litres/day
Bath	130 litres	1 bath/week	15 litres/day
Washing machine	35 litres/cycle	3 cycles/week	17.1 litres/day
Dishwasher	7.5 litres/cycle	1 cycle/day	7.5 litres/day

07. Pollution

Understanding the impact of noise and air pollution on the proposed site.

The proposed development will seek to avoid air, watercourse and noise pollution in line with local and national planning policy. The impact of the different sources of pollution have also been assessed within the Environmental Impact Assessment that accompanies this planning application. An Air Quality Assessment conducted by Redmore Environmental and a Noise Impact Assessment conducted by Professional Consult have been prepared in support of this planning application.

Air Quality

The proposed development was deemed to have the potential to impact air quality during both its construction and operational phases, as well as to expose future occupants to existing air pollution. Therefore, an air quality assessment was undertaken to establish baseline conditions and evaluate the significance of any predicted effects.

The site is located within the jurisdiction of St Albans City and District Council, adjacent to Dacorum Borough Council. While both councils have designated Air Quality Management Areas

(AQMAs) due to elevated pollutant levels, the development site itself is situated at a distance from these areas. Local air quality monitoring indicates that pollutant concentrations near the site are below relevant health-based criteria, and background levels are also within acceptable limits.

During the construction phase, no significant air quality effects are anticipated, provided that the recommended mitigation measures for dust control are implemented. Similarly, emissions from construction-related road traffic are not expected to significantly impact human health, and therefore, no additional mitigation is required.

In the operational phase of the completed development, road traffic emissions are predicted to have a negligible impact on air quality. There are no significant effects expected on human receptors, ecological receptors, or future occupants of the development, meaning no mitigation measures are deemed necessary.

Furthermore, when considering the cumulative impact of this

development alongside other planned developments in the area, no significant air quality effects are anticipated during either the construction or operational phases.

Watercourses

The proposed development has been designed to prevent from increasing levels of harmful nutrients in nearby water bodies. High levels of nutrients can cause water pollution and harm wildlife.

The development will seek to reduce its nutrient burden as far as practically possible through design and achieve nutrient neutrality. The on-site SuDS strategy ensures that runoff water will be sufficiently cleansed prior to discharge to the ground. Implementing a mix of SuDS techniques would form a treatment train to maximise the cleansing potential of the SuDS strategy.

Noise Impact Assessment

The existing sound environment across the site is primarily influenced by road traffic from the surrounding network. Additional intermittent noise arises from children playing in the outdoor areas of Brockswood Primary School, as well as low-level operational noise from an on-site electricity substation.

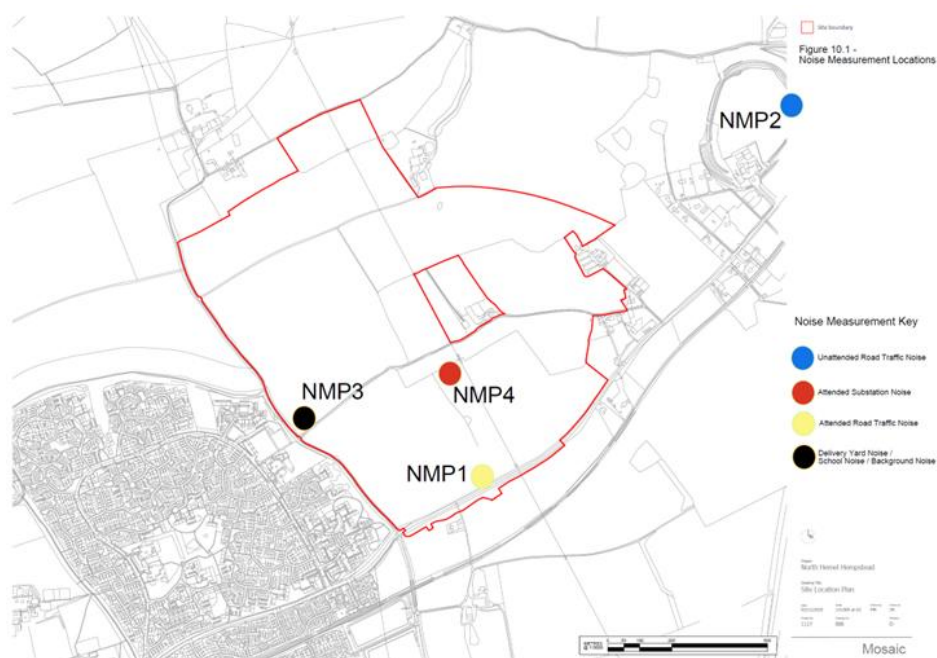
During the construction phase, the predicted effects of noise, vibration, and construction-related road traffic are all expected to be of negligible significance. These impacts are anticipated to be short-term, localised, and temporary in nature.

Once the development is complete, the changes in road traffic noise are also predicted to have a negligible effect, with impacts considered long-term and local. After implementing appropriate noise mitigation measures, the effects of road traffic noise on the Suitable Alternative Natural Greenspace (SANG) and residential amenity are expected to remain negligible and permanent. Similarly, the impacts of both existing and proposed commercial noise, as well as noise from the school and sports pitches, on residential amenity are predicted to be negligible in significance, with effects considered long-term, local, and permanent. The road traffic noise impact on the proposed school site is also expected to be negligible. When assessed in combination with

other developments in the area, the cumulative effects of construction noise and changes in road traffic noise are predicted to remain of negligible significance.

For further information about the assessment, please refer to the Noise chapter of the Environmental Statement.

Noise Assessment Measurement Locations



o8. Landscape and biodiversity

Understanding the ecological value of the proposed site and proposed recommendations.

Landscape

The development features an extensive Community Park that connects to the broader Hemel Garden Communities and provides ample space for recreational activities and outdoor enjoyment. It also offers opportunities for community-driven food cultivation through allotments, community gardens, and orchards, promoting sustainable agricultural practices. These green infrastructure enhancements, including the provision of Suitable Alternative Green Space (SANG), aim to fortify and promote an understanding of the natural world, enriching North Hemel Hempstead's overall environment for all.

The development meets on-site SANG requirements, strengthening green infrastructure and the preservation and enhancement of the natural landscape.

A Landscape and Visual Appraisal (LVA) has been carried out in order to inform the design process and considered relevant planning policy, landscape character assessments, existing site features

and the opportunities for minimising the impact of the proposed development on surrounding views.

Due to the presence of existing mature field boundary vegetation and the densely wooded northern edge to Hemel Hempstead, the wider North Hemel Hempstead site is largely visually contained, sharing limited or no intervisibility between Hemel Hempstead, Redbourn and the Chiltern's AONB. Partial/filtered views are possible from bridleway Hemel Hempstead 128, from Holtsmere End Lane adjacent to the northern boundary and footpath Great Gaddesden 048 within the wider landscape to the west/north - west.

Ecology

The development needs to achieve a minimum of 10% Biodiversity Net Gain (BNG) through a combination of on-site and off-site measures in accordance with local and national planning requirements. A preliminary ecology appraisal of the site has been completed by FPCR, the conclusions of which are presented below.

The desk study confirmed that there are no designated sites within the site boundary and no statutory sites within 2km. Whilst there are a number of Local Wildlife sites within 2km, the closest of which is the Nickey Way Dismantled Railway located approximately 125m to the south of the site, the proposed development is not considered to impact on these sites.

The findings of the extended Phase 1 Habitat Survey confirm that whilst much of the site comprises of arable farmland with low ecological and biodiversity potential, there are boundary habitats onsite which have the potential to support reptiles, birds, badgers, hedgehog and foraging bats. These include semi-improved grassland field margins, hedgerows and Phase One Habitat Plan scattered trees. The site is not considered suitable for Otter, Water Vole, Roosting Bats, Hazel Dormouse or Great Crested Newt.

Reptile and Bat Surveys have subsequently been undertaken which demonstrate that there are no reptiles currently using the site but that there is evidence of bat foraging within the trees along the field boundaries. These do not present an overriding constraint to development and the retention of important boundary hedgerows and trees within the proposed masterplan will help ensure that the connective foraging habitat for foraging bats, badgers, reptiles and hedgehogs are maintained, minimising and/or avoiding any impacts. There are also good opportunities to achieve an overall biodiversity net gain and enhanced habitat for protected species by including good quality habitats within the proposed community park and other areas of public open space and the SuDs network.

The site mainly comprises arable crops and modified grassland which are of low ecological value. More valuable habitats across the site include ponds, woodland, mixed scrub, hedgerows and trees. The site and surrounding survey area supports the following protected/notable species:

- Multiple badger setts including two main setts on site;
- Common and widespread bat species and low numbers of Annex II bat species barbastelle; and
- Breeding and wintering birds including skylark, lesser woodpecker and two red kite nests.

Appropriate mitigation measures are required to ensure the retention of these protected and notable species on site post-development. Further information can be found in the ecological appraisal.

09. Transport

Understanding the sustainable transport measures proposed for the site.

A transport and access assessment has been produced by i-Transport and evaluates the potential impacts of traffic generated by the proposed development during both the construction and operational phases. It considers effects on local roads, pedestrian and cycling routes, and public transport, while also accounting for background traffic growth and nearby cumulative developments. The site forms part of the wider Hemel Garden Communities initiative, which aims to deliver 11,000 homes and 10,000 jobs. It is well connected via the B487 Redbourn Road, with access to the M1, and benefits from proximity to employment centres and public transport, including the Centrebus 46 service and the Nickey Line, which supports active travel.

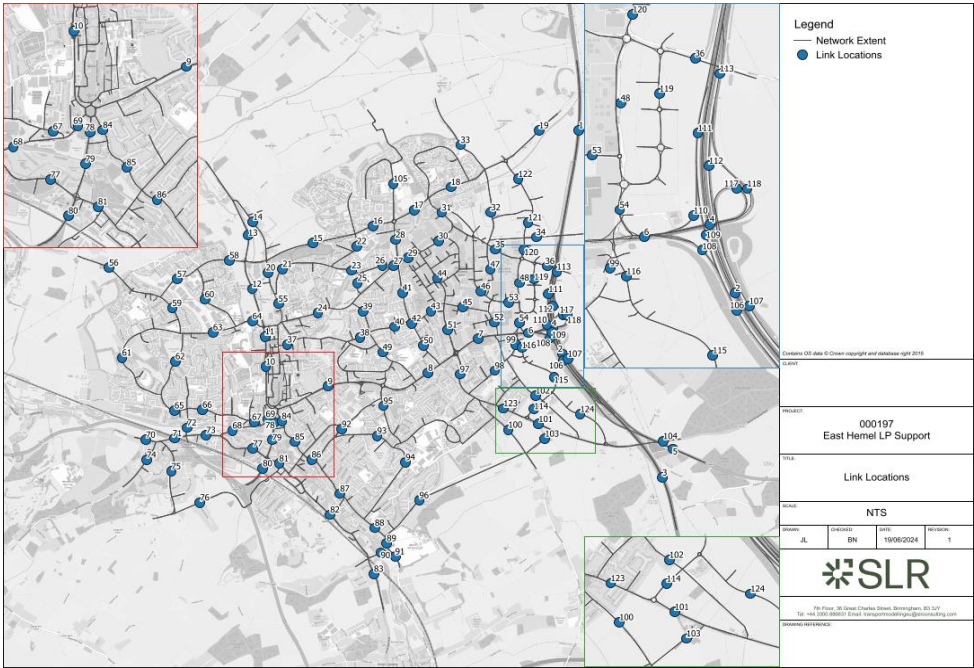
During construction, the temporary increase in vehicle and HGV movements is not expected to exceed thresholds that would trigger significant impacts under IEMA guidance. As such, the construction phase is predicted to have a negligible effect on transport.

In the operational phase, three

road links were indentified with more than a 10% increase in daily vehicle flows. However, the overall impact across all transport assessment topics was negligible, except for a medium impact on driver and passenger delay at Green Lane (north of Boundary Way). This effect is expected to be temporary due to the planned Sustainable Transport Corridor, which will divert traffic away from the affected links.

Overall, the development is predicted to have a negligible transport impact. In addition, the masterplan promotes sustainable travel via enhanced walking and cycling routes, public transport links, and a mobility hub, reducing car dependency and aligning with Hemel Garden Communities' vision for a connected, low-carbon neighbourhood.

Assessed Site Transport Links



10. Health and Wellbeing

Understanding the health and wellbeing measures of the proposed site.

The proposed development seeks to establish a new local centre designed to provide commercial opportunities that enhance and support neighbouring communities, without creating direct competition with the existing facilities at Woodhall Farm. This strategic approach aims to foster sustainable growth and collaboration while complementing the services already available in the area.

The envisioned local centre will include a range of facilities tailored to meet the diverse needs of the community. These include a playground to serve families, a three-form entry primary school to address local educational demand

and specialist housing designed to accommodate older residents. Additional provisions may comprise commercial spaces to encourage local enterprise, a mobility hub offering facilities that promote sustainable modes of transport and healthcare services to support the well-being of residents. Furthermore, remote working spaces will be provided to facilitate flexible work arrangements, aligning with contemporary working practices and contributing to the area's economic resilience.

Adequate access to daylight and sunlight will be incorporated into the design as much as possible. To minimise the impact on internal air

quality, material specifications should explicitly avoid products that contain Volatile Organic Compounds (VOCs) wherever possible. Typical VOC sources include paints, lacquers, some pressed timber products (including some hardboards, particle boards, hardwood plywood wall panelling), glues and adhesives, furniture made from pressed wood products and foamed insulation.

To ensure a thermally comfortable environment for building occupants and pedestrians, future designs should incorporate passive design strategies to mitigate overheating risk (for more details on this refer to Section 4).



11. Material and waste

Understanding material choice and construction and operational waste

Construction waste

The proposal will aim to maximise the use of technologies that are available to reduce waste and carbon emissions aligning with emerging Policy CE1 of the St Albans Draft Local Plan 2041.

As the design develops, measures to reduce construction waste will be considered. This includes developing a network of local suppliers and manufacturers to source materials and goods. As the project progresses, prioritising businesses that are committed to sustainable practices and have low carbon footprints. It also includes selecting low embodied carbon materials, using local resources,

and prioritising the reuse and recycling of materials. Sustainable construction practices will be promoted, focusing on good site management to enhance resource efficiency, increase material recovery, and avoid landfill disposal. Further details will be provided during subsequent Reserved Matters applications.

Operational Waste

Waste minimisation will be actively promoted during the operation of all buildings. Each dwelling will be equipped with dedicated, adequately sized, and easily accessible waste storage areas or bins depending on the dwelling type (house or flat). Waste storage

or bins will clearly separate different waste streams, including general waste and recyclable materials. Additionally, composting of organic waste will be encouraged through comprehensive recycling programs.

As the project progresses, North Hemel Hempstead will explore opportunities to collaborate with Hemel Garden Communities to implement advanced waste management systems, including recycling programs, composting, and waste-to-energy technologies.



12. Conclusion

Delivering a sustainable development

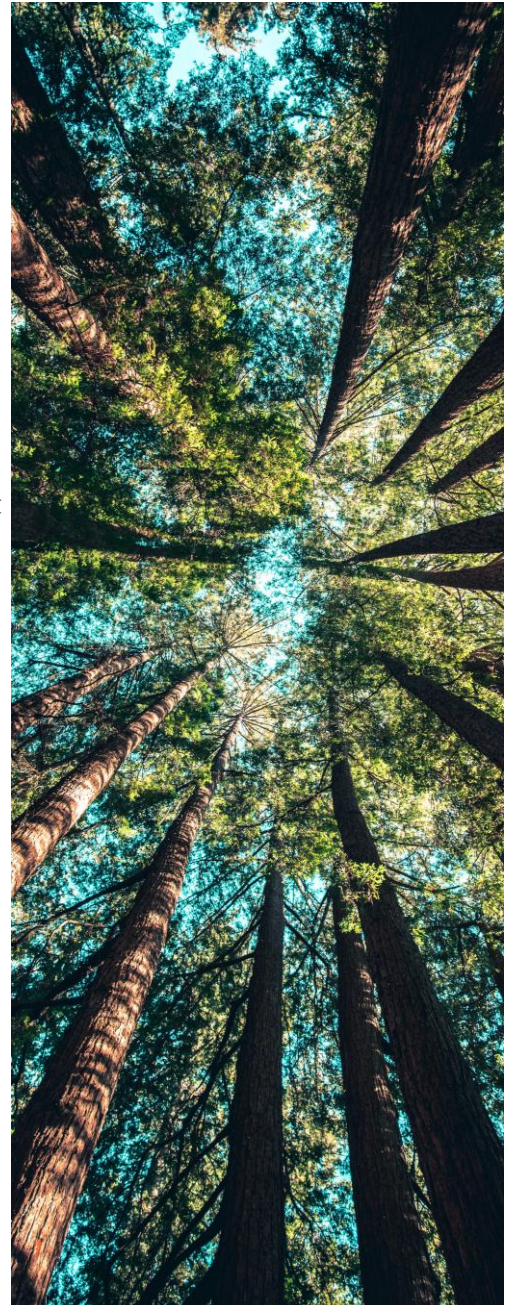
This Outline Energy and Sustainability Statement responds to the current and emerging planning policies of St Albans City & District Council demonstrating how the development will incorporate sustainable design, preserve the character of the area, promote a new vibrant community, and mitigate the impact of climate change from the outset. The following key areas have been addressed: energy and renewables, health and wellbeing, landscape and biodiversity, flood risk and drainage, pollution, waste and transport. This statement demonstrate that the proposed development responds to the relevant sustainability policy through the following features:

- The development aims to create a low-carbon community that meets the Future Homes Standard requirements. It adopts a 'fabric first' approach to minimise energy demand, by using efficient systems that do not rely on fossil fuels, and by integrating renewable energy sources, delivering zero carbon ready buildings;
- The site is dedicated to

delivering extensive green spaces and infrastructure including a community park allotments and Suitable Alternative Natural Greenspace (SANG) in order to promote and enhance biodiversity;

- The development will establish a high-quality, sustainable mixed-use neighbourhood with local amenities, green recreational spaces, and integrated sustainable transport options to minimise transport related carbon emissions; and
- North Hemel Hempstead will provide significant community benefits, including new affordable homes, enhanced quality of life, social cohesion, economic growth, and reduced carbon emissions through well-designed buildings.

Additional details of the measures presented in this report will be provided as part of future subsequent Reserved Matters applications, responding to local, regional and global sustainability issues.





Savills Earth

Savills Earth provides a full suite of energy and sustainability services across both the built and natural environments. Savills Earth consolidates our established lines of business and expertise to deliver the very best sustainability, energy and carbon strategies on behalf of our clients. With over 100 specialists in the team, Savills Earth turns client sustainability and energy aspirations into a reality.

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