BURO HAPPOLD

Dewsbury Riverside

Climate Change Statement for Hybrid Planning Application

0048206-BHE-XX-XX-RP-SP-0001

0048206

24 September 2021

Revision P02

Copyright © 1976 - 2021 Buro Happold. All rights reserved

Revision	Description	Issued by	Date	Checked
P01	Draft planning issue	DK	03/09/2021	GC
P02	Final planning issue	DK	24/09/2021	GC

This report has been prepared for the sole benefit, use and information of Kirklees Council for the purposes set out in the report or instructions commissioning it. The liability of Buro Happold Limited in respect of the information contained in the report will not extend to any third party.

author	**Denas Karnauskas**
date	**24/09/2021**
approved	**Georgina Chamberlain**
signature	
date	**24/09/2021**

..

Copyright © 1976 - 2021 Buro Happold. All rights reserved

Contents

1 Executive Summary 5

2 Introduction 6

2.1 Scope 6

2.2 Site location 6

2.3 Proposed development 6

3 Sustainability Policy Review 7

3.1 Local 7

3.2 National 8

3.3 Global 8

4 Sustainability strategy 9

4.1 Energy 9

4.2 Embodied carbon and Waste 9

4.3 Renewable and low carbon energy 10

4.4 Building design and layout 10

4.5 Flooding 11

4.6 Water usage 11

4.7 Landscape and Biodiversity 11

4.8 Air pollution 11

5 Conclusion 13

Copyright © 1976 - 2021 Buro Happold. All rights reserved

Copyright © 1976 - 2021 Buro Happold. All rights reserved

1 Executive Summary

This Climate Change Statement has been prepared in support of the detailed planning application for the Dewsbury Riverside development, located in the Kirklees district of West Yorkshire.

This Climate Change Statement sets out how the Development seeks to embed climate change mitigation and adaptation, taking into account planning policy and industry best practice. In addition to considering the wider social and economic aspect of sustainability, the Climate Change Statement responds directly to Kirklees Council Climate Change Guidance (June 2021) and the Council's commitment to achieve 'net zero' carbon emissions by 2038.

The statement is structured around two key sections:

1. Planning policy context
2. Sustainability (or Climate Change) strategy and delivery

The Development responds to eight sustainability aims informed by the guidance generating a framework for integrating climate change mitigation and adaptation into the Development design proposals. The associated key commitments summarised in the table below seek to demonstrate that the Development has a clear strategy for climate change mitigation and adaptation throughout the whole life of the Development, minimising its vulnerability to climate change impacts and contributing to the Council's commitment to achieve 'net zero' carbon emissions by 2038.

Sustainability Objectives	Key Considerations
Energy *Encourage sustainable design and the incorporation of energy efficiency*	• Energy Options Appraisal has been prepared with two sustainable energy supply options proposed • Electric Vehicle strategy to be developed at a later stage • Smart meters and energy display devices, drying space (where appropriate), cycle storage, thermostat control, building user guide as energy saving solutions
Embodied carbon and waste *Minimise carbon emissions and waste during construction*	• Cut material quantities minimised, where possible; no off-site fill should be required • Circular economy principles and material efficiency, where possible • The development of a Resource Management Plan, identifying the Development waste targets • Responsible and local sourcing of materials, where possible • Durability and resilience measures to limit material degradation and damage to exposed elements of the building
Renewable and low carbon energy *Reduce carbon emissions and energy bills by incorporating on-site renewables and low-carbon technologies*	• Energy Options Appraisal has been prepared with two sustainable energy supply options proposed • The use solar PV panels and wind turbines under investigation • Low and zero carbon feasibility study will be considered during the next stages of design development
Building design and layout *Optimise solar gain while maximising the use of natural light and ventilation for cooling*	• The energy hierarchy (mean-lean-green) principles • Prioritising energy demand reduction by considering massing, layout and orientation of buildings • Energy efficient building services systems to further reduce energy use
Flooding *Minimize the risk of flooding, including future risk*	• A site-specific Flood Risk Assessment and a Surface Water Drainage Strategy have been prepared for planning. Which includes a 40% allowance for climate change • The site is located entirely within Flood Zone 1 • The Development considers the use of sustainable drainage techniques in accordance with local policy • Linear features such as filter strips and swales should be used to drain water from roads • Detention basins are proposed for attenuation, where possible
Water usage *Minimise the use of water through reducing water consumption and incorporating water saving technologies*	• Low-flow fittings, water monitoring and leak detection systems • Consideration of rainwater harvesting and grey water reuse systems during the next stages of design development
Landscape and biodiversity *Enhance the green infrastructure of areas through landscaping to support water retention, carbon reduction and biodiversity net gains*	• An Ecological Impact Statement investigating the effects of the Development on the terrestrial ecology of the Site and the surrounding area has been prepared • The Development allows for 18.8ha of green infrastructure • The proposed measures result in a 11.64% net gain in habitats and a 33.60% net gain in hedgerows • Linear features such as filter strips and swales should be used to drain water from roads • Detention basins are proposed for attenuation wherever possible
Air quality *Incorporate measures to reduce air pollution*	• An Air Quality Assessment has been undertaken, investigating the air quality impacts during both the construction phase and the operational phase of the proposed development • Air quality impacts from construction traffic and energy supply during operation were found to be negligible • The measures to minimise emissions from construction activities and operational traffic have been proposed • The Development is located in a highly sustainable location with great access to facilities and public transport • A site-specific Transport Assessment and a Travel Plan for the Development have been prepared • A five-year target for an increase in sustainable travel of 5% from the Census data for the Development has been set • Communal electric vehicle charging points will be provided

Copyright © 1976 - 2021 Buro Happold. All rights reserved

2 Introduction

2.1 Scope

This Climate Change Statement has been prepared in support of the hybrid planning application for the residential development at Dewsbury Riverside situated within the Metropolitan Borough of Kirklees, in West Yorkshire, England ('the Proposed Development' or 'the Development'). It seeks to demonstrate how Kirklees Council's sustainability policies and Climate Emergency declaration has informed the Proposed Development.

The Statement comprises the following sections:

- **Planning Policy Review** to set the context for the Development and identify key present and potential future environmental sustainability targets; and
- **Sustainability Strategy** to outline how the Development will respond to the climate change factors in the context of the Kirklees Local Plan.

2.2 Site location

The Development site ('the Site') is located approximately 2 km to the south-west of Dewsbury Town Centre and forms part of the north-western part of the Dewsbury Riverside housing allocation. The Site extends to circa 28.26 ha and currently comprises mostly agricultural land. The Site boundary is illustrated in Figure 2.1.

2.3 Proposed development

The proposed development seeks hybrid planning permission including the approval for:

a) Application for full planning permission for engineering works, drainage and utilities connection for the provision of site access from Forge Lane and Ravensthorpe Road and associated works; and,
b) Application for outline planning permission for the erection of up to 350 dwellings and mixed use development (including community facilities) with associated works including the provision of internal estate roads and parking, landscape works (including provision of public open space, tree clearance/replacement/woodland management and ecological management) and sustainable urban drainage works drainage principles.

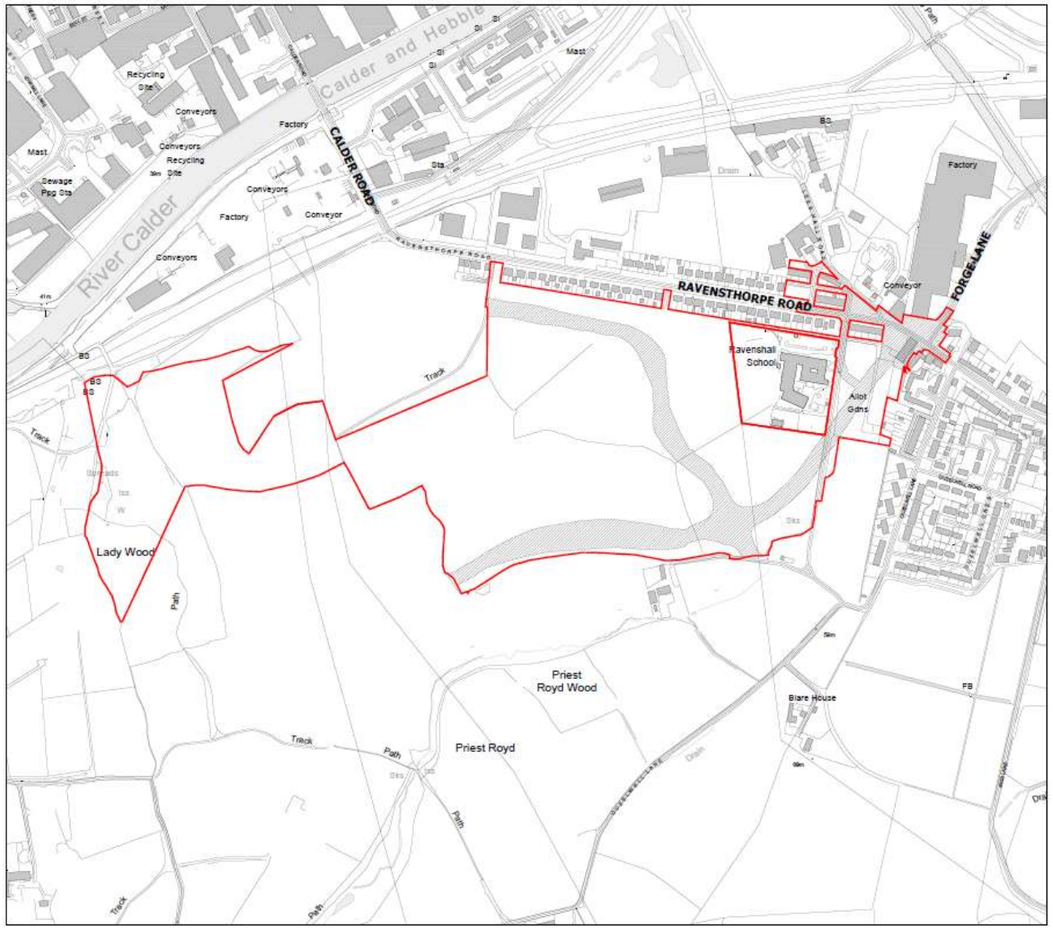


Figure 2.1: Site Location Plan (23.09.21, Barton Willmore)

Copyright © 1976 - 2021 Buro Happold. All rights reserved

3 Sustainability Policy Review

3.1 Local

On 12th November 2019, the Kirklees Council ('the Council') adopted a target for achieving 'net zero' carbon emissions by 2038. To enable developers to demonstrate how climate change factors have been considered in preparing proposals in the context of the Kirklees Local Plan, the Council now expects a Climate Change Statement ('the Statement') to be submitted as part of all planning applications. This includes consideration of reducing energy demand, minimising carbon emissions and waste, renewable and low carbon energy, building design and layout, flooding, water usage, landscape, biodiversity and air pollution.

Planning applications climate change guidance is divided into short sections to provide advice on completing each section of the Statement. The guidance highlights which measures are:

- Essential considerations (where these are stated within a local plan policy); or
- Desirable (where further actions are encouraged).

Reducing energy demand

Aim	Encourage sustainable design and the incorporation of energy efficiency
Policies	LP24, LP26, LP47
Essential considerations	• Developments should include own Combined Heat and Power (CHP) systems for master-planned sites or have the ability to connect to existing systems
Desirable considerations	• Smart energy metering and display devices • User-friendly building service controls • Energy efficient white goods • External drying space for laundry • Welcome packs for occupants • Smart heating controls

Minimising carbon emissions and waste

Aim	Minimise carbon emissions and waste during construction
Policies	LP24, LP30, LP43
Essential considerations	• Retaining and refurbishing existing buildings/features rather than demolishing and rebuilding unless the loss of 'embodied' carbon can be offset by resulting improvements in the energy efficiency of the building • Follow the waste management hierarchy and incorporate facilities to minimise waste as part of development proposals during demolition, site clearance, construction and when subsequently occupied • Sufficient space for recycling and waste storage • Consideration for waste minimisations early in the design process
Desirable considerations	• Promote the most efficient use of a building's footprint by ensuring that land and material use is optimised across the development • Prefabricated off-site construction • Low U-value, low embodied carbon, durable and locally sourced materials • Consideration for the impact on biodiversity of the use of peat, weatherworn limestone and other materials from vulnerable habitats • Sustainably sourced timber • Home composting units for residential schemes with private gardens

Renewable and low carbon energy

Aim	Reduce carbon emissions and energy bills by incorporating on-site renewables and low-carbon technologies
Policies	LP24, LP26
Essential considerations	• Explore the potential of developing a heat network, or connecting to an existing network
Desirable considerations	• Solar PV and/or solar thermal panels and a visual display showing when hot water and electricity is being produced • Ground / air / water source heat or cooling • Wind turbines • Biomass heating / power

Building design and layout

Aim	Optimise solar gain while maximising the use of natural light and ventilation for cooling
Policies	LP24
Essential considerations	• Passive solar design • Energy efficient design and initiatives to promote energy efficiency within homes
Desirable considerations	• Spatial arrangements to accommodate solar panels (i.e., south facing slope) • Landscaping to provide shelter from winds • High fabric performance • Energy efficient heating and lighting (including maximising natural lighting) • Low energy/emissions building standards, e.g. BREEAM, Passivhaus • Passive design principles for the site masterplan site layout

Passive solar design strategies can include locating primary habitable rooms and optimising glazing on the south side of the building, minimising the area of north facing windows, managing heating and cooling through use of vegetation and tree planting, high thermal mass materials.

Energy efficient design strategies can include extra insulation of walls, roofs and floors, low emissivity double glazing or triple glazing, high efficiency boilers with zone temperature control, automatic lighting control, use of roof lights/openings to increase daylight. Pursuing green building rating systems such as BREEAM or Passivhaus should be considered.

Flooding

Aim	Minimize the risk of flooding, including future risk
Policies	LP27, LP28
Essential considerations	• Flood risk sequential test and Exception Test (where required) • Site-specific Flood Risk Assessment • On greenfield site, typical greenfield run-off rates should not exceed previous rates; and for proposals on brownfield site there should be a minimum 30% reduction in surface water run-off • Management and maintenance arrangements for the lifetime of the development including climate change risk • Sustainable Drainage Systems
Desirable considerations	• Avoiding large areas of impermeable hard surfacing • Incorporating open spaces and green infrastructure to contribute to the sustainable drainage of the site • Incorporating trees and vegetation to reduce surface water runoff

Copyright © 1976 - 2021 Buro Happold. All rights reserved

Water usage

Aim	Minimise the use of water through reducing water consumption and incorporating water saving technologies
Policies	LP24, LP34
Essential considerations	• Water conservation techniques (e.g., water-efficient toilets, waterless urinals, low-flow, infrared controlled taps, low-flow showers, low volume baths, low water use washing machines/dishwashers, water metering)
Desirable considerations	• Rainwater harvesting • Water recycling (or 'grey water') • Groundwater

Landscaping and biodiversity

Aim	Enhance the green infrastructure of areas through landscaping to support water retention, carbon reduction and biodiversity net gains
Policies	LP34
Essential considerations	• Net biodiversity gains • Incorporating open spaces and green infrastructure to contribute to the sustainable drainage of the site
Desirable considerations	• Draught resistant plants • Water retaining mulches and ground-cover plants • Setting out plants and lawns as early in spring as possible

Air pollution

Aim	Incorporate measures to reduce air pollution
Policies	LP51
Essential considerations	• Active travel measures (outlined within Travel Plan) • Electric vehicle charging points
Desirable considerations	• Locally sourced materials • Mechanical ventilation systems • Tree planting in open spaces

3.2 National

National Planning Policy Framework (Updated July 2021)

The National Planning Policy Framework and relevant planning practice guidance sets out the Government's planning policies for England. The presumption in favour of sustainable development is at the heart of the framework, cascading through to local plans and the approval process for planning applications.

Key issues addressed are summarised below:

Delivering a sufficient supply of homes	Achieving well-designed places
Building a strong, competitive economy	Protecting Green Belt land
Ensuring the vitality of town centres	Meeting the challenge of climate change, flooding and coastal change
Promoting healthy and safe communities	Conserving and enhancing the natural environment
Promoting sustainable transport	Conserving and enhancing the historic environment
Supporting high quality communications	Facilitating the sustainable use of minerals
Making effective use of land	

25 Year Environmental Plan (2018)

This plan sets out the Government's ambition to '*…champion sustainable development, lead in environmental science, innovate to achieve clean growth and increase resource efficiency to provide benefits to both our environment and economy*'.

The plan provides fresh impetus for the principles of sustainable development to be at the heart of decision-making, setting out clear objectives and common language for policy and decision makers to adopt. The Environment Bill 2020 is currently progressing through Parliament and will bring into UK law new environmental protections and recovery to deliver the ambitions set out in the 25 Year Environment Plan.

Policies and actions are structured around six key areas:

Chapter 1: Using and managing land sustainability
Chapter 2: recovering nature and enhancing the beauty of landscapes
Chapter 3: Connecting people with the environment to improve health & wellbeing
Chapter 4: Increasing resource efficiency and reducing pollution and waste
Chapter 5: Securing clean, healthy, productive and biologically diverse seas and oceans
Chapter 6: Protecting and improving our global environment

Climate Change Act 2008

The Climate Change Act sets out the UK Government's pathway to reduce greenhouse gas emissions by at least 80% (relative to 1990 levels) by 2050. This includes the requirements to set legally binding carbon budgets over five-year periods to act as intermediate milestones.

On 27th June 2019, a more ambitious target of net zero carbon by 2050 was adopted by the UK Government in response to public sentiment and the release of the Intergovernmental Panel on Climate Change (IPCC) Special Report on Global Warming of 1.5ºC (October 2018).

Future Homes Standard

The Future Homes Standard was first announced in the government's spring statement in 2019, but the full details of the standard are yet to be mapped out. The Future Homes Standard will come into effect in 2025 and ensure that new homes in England are futureproofed with low-carbon heating systems and high levels of energy efficiency.

3.3 Global

Climate Change is recognised as one of the biggest threats facing our planet. In 2015, the Paris Agreement was adopted by countries around the world, forming a global consensus on the need to limit the global temperature rise to well below 2 degrees Celsius (2ºC) through greenhouse gas mitigation measures. Annual United Nations (UN) Climate Change Conferences have taken place to develop the detailed action plan. Complementary to this in 2015, countries around the world adopted seventeen Sustainable Development Goals (SDGs) as a means to end poverty, protect the planet and ensure prosperity for all by 2030 through collective action.

Copyright © 1976 - 2021 Buro Happold. All rights reserved

4 Sustainability strategy

This section outlines climate change mitigation measures proposed by the Development in consideration with the "Planning Applications – Climate Change Guidance" (Kirklees Council, June 2021) document. The questions posed for the Development at the beginning of each sub-section have been taken from the Climate Change Statement template. The following should be read in conjunction with "Section 3 – Sustainability Policy Review".

4.1 Energy

What measures have been/will be taken to reduce the energy demand associated with your proposed development beyond the minimum required in Building Regulations?

Energy supply

Buro Happold have been commissioned by Kirklees Council to carry out an Energy Feasibility Study for the Development. Three scenarios have been modelled for the Development:

- Scenario 1 - District heat network supplied by a centralised ground source heat pump and peak gas boilers
- Scenario 2 - Decentralised air source heat pumps
- Scenario 3 – Gas boilers (referred to as counterfactual option in image below)

Carbon savings over 30 years for each of the options have been assessed. The carbon savings associated with Scenario 1 are 20,433 tCO2e, and 23,176 tCO2e for Scenario 2, compared against the counterfactual.

It should be noted that under new guidance, gas boilers cannot be installed in England. This scenario is presented to demonstrate improvements gain by Scenario 1 and 2, however after 2025 this option cannot be implemented.

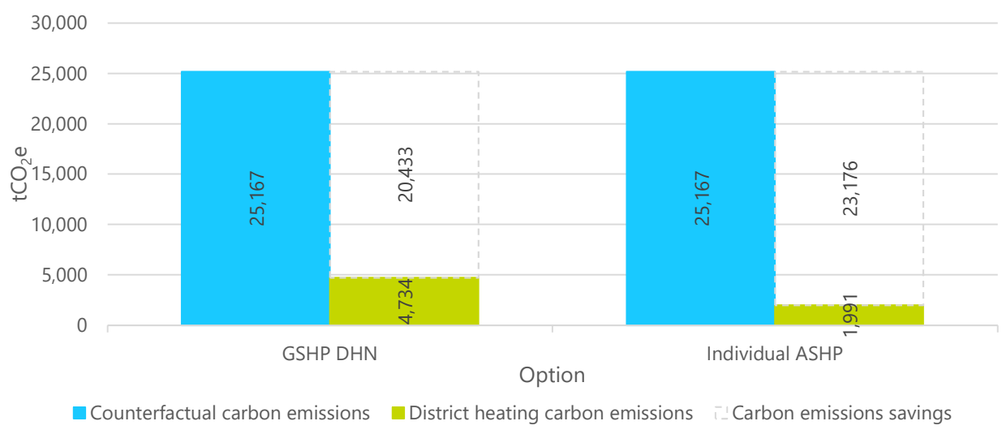


Figure 4.1: Carbon emissions savings over 30 years compared to a gas boiler counterfactual

A full list of benefits and risks/constraints for each of scenarios can be found in the Energy Feasibility Study. It is recommended that a detailed feasibility study is carried out once there is further development of the Site and more information becomes available.

The energy strategy will further be defined by the Electric Vehicle (EV) strategy which is yet to be developed and will inform the overall power peak demand. The time of use of electric vehicles in conjunction with the heat generation plant and consumer usage will be investigated in further development stages.

Energy saving solutions

The specification and design of energy efficient building solutions will be encouraged by the Development. As the Development will provide a varied housing mix, the following will be considered where appropriate:

- **Smart energy display devices**, empowering dwelling occupants to reduce energy use
- **Drying space**, promoting a reduced energy means of drying clothes
- **Cycle storage**, promoting the use of bicycles as a means of transport leading to reduced need for short car journeys and the associated CO_2 emissions
- **Smart and user-friendly controls for heating and lighting**, encouraging dwelling occupants to use the services in the most optimum way to increase energy savings
- **Building user guide**, enabling dwelling occupants to understand and operate their home efficiently and make the best use of local facilities. This could include information on energy efficient white goods to reduce the CO_2 emissions from appliance use in the dwellings

4.2 Embodied carbon and Waste

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 or sourcing materials locally?

Enabling Works

The proposed earthworks design has been carried out based upon topographical information. The cut material quantities have been minimised where possible and no off-site generated fill should be required. The re-use of cut materials on site will be evaluated by the Contractor at a later stage.

Embodied Carbon

Circular Economy principles will shape the design with an aim to reduce the Development's whole life embodied carbon impact. Consideration could be given to:

- Designing out waste, e.g. through optimising the design for material efficiency and pre-fabricated off-site construction where appropriate
- Designing for a balance of longevity, adaptability and future flexibility for different components of the buildings and infrastructure
- Designing for deconstruction so materials can be easily recovered for re-use and recycling at their end-of-life

Opportunities for reducing upfront embodied carbon associated with construction materials, their transportation and installation will be explored and could include:

- Seeking bricks and other key building components with high recycled content
- Opting for mineral wool insulation as oppose to more traditional carbon intense polymer-based insulation
- Where reinforced concrete is required for the foundations and lowest floor construction, a concrete mix with high cement replacement will be considered
- Locally sourcing materials where practical

The development of an early-stage design strategy that sets out a clear framework to guide material efficiency activities throughout the design and construction of the project will be considered. The report shall set out aims, objectives, targets, performance indicators, opportunities, constraints and responsibilities to guide material efficiency activities. The report shall be a product of workshops with the design team in attendance, including the architect, structural engineer and building services engineer as a minimum.

Copyright © 1976 - 2021 Buro Happold. All rights reserved

Construction waste management

A Resource Management Plan (RMP) will be developed, defining:

- Target benchmarks for resource efficiency in accordance with best practice
- Procedures and commitments to minimise non-hazardous construction waste at design stage
- Procedures for minimising hazardous waste
- Monitoring, measuring, and reporting of hazardous and non-hazardous site waste production

The RMP will be developed in accordance with guidance from Defra (Department of Environment, Food and Rural Affairs) or BRE (Building Research Establishment Ltd).

All development waste will be managed in line with the waste hierarchy prioritising waste prevention and reuse, followed by recycling, then energy recovery, and last of all disposal (e.g. landfill).

Responsible sourcing of materials

The Development will encourage the selection of products that involve lower levels of negative environmental, economic and social impact through actively seeking products that have been independently verified through industry recognised responsible sourcing standards (e.g. BES 6001, ISO 14001, FSC).

The use of recycled and sustainably source aggregates will be similarly encouraged.

Durability and resilience

Appropriate measures to limit material degradation and damage to exposed elements of the building will be explored, reducing the need to repair and replace materials. Appropriate measures will be determined by reviewing the following information:

- What factor the element will withstand
- How the element has been designed to withstand it
- Access where an element will require regular maintenance

Durable and resilient building elements will result in fewer replacements and less maintenance, reducing the production of waste by the Development as well as its whole life carbon when the Development is occupied.

Operational waste

The Development will provide adequate internal and external storage space for non-recyclable waste and recyclable household waste. The provision of compost facilities (e.g. communal or individual home composting facilities) will be considered.

4.3 Renewable and low carbon energy

What measures have been/will be taken to utilise renewable or low carbon energy sources?

The considerations outlined under "Energy Supply" in Section 4.1 apply.

The Development is situated on land that is not currently occupied with existing buildings. This enables the possibility for many secondary heat sources to be utilised and upgraded with a heat pump. The renewable power generation technologies analysed for initial indicative generation capacities and annual demands include solar PV panels and wind turbines.

From analysing the initial masterplan documents and the indicative layout for the Development, two areas within the initial masterplan were identified as potential locations for the development of ground mounted solar PV panels. The two areas identified were located towards the Eastern and Western boundaries Indicative solar modelling for rooftop PV, however, was unable to be undertaken due to limited masterplan information on the Development.

Analysis of wind resource within the masterplan site has deemed the Development of wind turbines within the Site as unsuitable for development.

Dewsbury Riverside Energy Options Appraisal should be referred to for further detail.

In later design, low and zero carbon (LZC) feasibility study will be considered to establish the most appropriate LZC energy sources for the Development. If carried out, the LZC technologies will be adopted in line with the feasibility study recommendations. The selection of technologies will depend on an array of factors including energy generated from LZC energy source per year, carbon dioxide savings, life cycle cost and local planning criteria.

4.4 Building design and layout

What measures have been/will be taken to ensure the building design and layout has been optimised to energy efficiency beyond the minimum requirements in Part L of the Building Regulations?

The design of the Development will follow the principles of the energy hierarchy (mean-lean-green) which aims to:

- Minimise energy demand through passive design,
- Minimise energy use though efficient systems, and
- Utilise renewable energy.

As a result, the Development will prioritise energy demand reduction in the first instance by considering massing, layout and orientation of buildings, seeking to optimise daylight and sunlight levels in buildings and improve building performance. Other passive design measures such as thermally efficient envelope and natural ventilation will be similarly explored.

Energy efficient energy systems will be considered to further reduce energy use with consideration for the following: highly efficient electric panel heaters, electric cylinders, energy-efficient mechanical ventilation with heat recovery units and LED lighting. This will result in lower energy use and carbon emissions across the Site. In addition, the use of onsite renewable energy will be investigated, focusing on using rooftop photovoltaic (PV) panels as a preferred option.

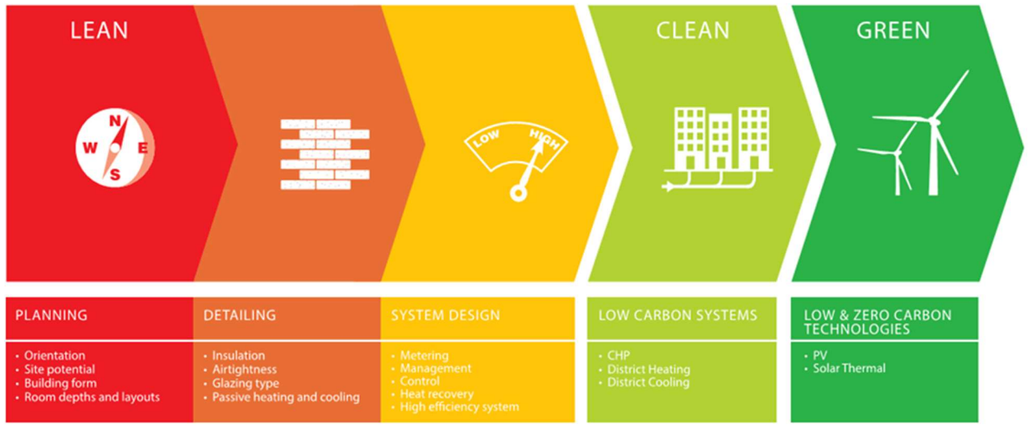


Figure 4.2: Lean-Clean-Green Energy Hierarchy

In addition, pursuing a Sustainable Building Certification, such as Home Quality Mark or Passivhaus, will be considered. Similarly, Future Homes Standard could be considered depending on when the standard is published (currently expected in 2025).

Copyright © 1976 - 2021 Buro Happold. All rights reserved

4.5 Flooding

What measures have been/will be taken to reduce potential impacts of flooding associated with your proposed development?

A site-specific Flood Risk Assessment and a Surface Water Drainage Strategy have been prepared for planning.

According to the national flood map produced by the Environmental Agency (EA), the Site is located entirely within Flood Zone 1, which is classified as having a low risk of flooding from rivers and the sea. The nearest river to the proposed development is the River Calder, approximately 300m north of the proposed development, however the Site is sloped, with Site elevation levels 10-20m higher than the river. Tidal and fluvial flood risk is therefore considered to be low and additional measures to reduce this risk will not be required.

Yorkshire Water (YW) was contacted to agree the discharge rates from Phases 1 and 2 to the existing YW sewers. A response was received the 15th July 2021 indicating an allowed discharge rate of 3.5 l/s for the Norther Site (Phase 1) and a discharge rate of 5 l/s for the Southern Site (Phase 2). Preliminary surface water attenuation volume calculation has been carried out using MicroDrainage. Storage sizing is based on a 1 in 100-year return period with 40% Climate Change allowance.

The Development considers the use of sustainable drainage techniques in accordance with local policy. The CIRIA SuDS (Sustainable Drainage Systems) Manual contains a hierarchy of sustainable methods of capturing and storing rainwater in a descending order: from drainage into the ground to recharging water resources. Since infiltration is not possible, surface water will be stored on site in open water features and then released at a controlled rate.

Based on the SuDS assessment in the Surface Water Drainage Strategy, the following is currently proposed:

- Linear features such as filter strips and swales should be used to drain water from roads. The swales can also convey flows from building plots. The swales will connect to the attenuation. Piped crossings will be required at road crossings.
- Detention basins are proposed for attenuation wherever possible.

SuDS maintenance plan has been prepared and can be found in Appendix E of the Surface Water Drainage Strategy.

4.6 Water usage

What measures have been/will be taken to reduce water stress associated with your proposed development?

The details of water conservation measures will be determined at the detailed design stage, however the use of low flow fittings, water monitoring and leak detection systems will be encouraged.

Furthermore, the feasibility for installation of rainwater harvesting and grey water reuse systems will be investigated.

Water consumption associated with non-domestic scale, non-sanitary water uses will be identified, encouraging reductions by adopting water saving technologies (e.g. smart irrigation), where possible.

4.7 Landscape and Biodiversity

What measures have been/will be taken to provide biodiversity net gains?

An Ecological Impact Statement has been prepared for the planning application, investigating the effects of the Development on the terrestrial ecology of the Site and the surrounding area.

The design ensures that impacts to high quality habitat, or the habitat that has the potential to be enhanced - such as the plantation - will be avoided and retained within the development. This includes the broadleaved woodland and plantation, together with the majority of the boundary features with the exception of sections that will be removed to facilitate the construction of the access road.

The parameters plans allow for approximately 18.8ha of green infrastructure within the Development, which includes the woodland areas. During the design process, the Biodiversity Metric 2.0 was used to assess impacts to habitats and to explore options as to how the proposals could retain, enhance and create habitats on site to deliver biodiversity net gains.

To deliver biodiversity net gains, the following measures are being proposed:

- Introduction of habitats such as semi-natural grassland, scrub and orchards
- Introduction of a native hedgerow along the southern boundary connecting to the plantation and woodland to the west
- Ecologically designed SuDs, where the topography and hydrology allow
- Measures to improve and enhance the condition and management of the woodland (priority habitat)

The development of the Landscape and Ecological Management Plan will be considered. Overall, the calculations in the Ecological Impact Statement demonstrate a 11.64% net gain in habitats and a 33.60% net gain in hedgerows.

The measures to prevent the existing ecology from construction impacts will similarly be implemented, such as the development of a Construction Environmental Management Plan, provision of replacement nesting habitat to replace lost nesting opportunities, installation of variety of bat and bird boxes, and incorporation of plant species which are native and/or of known benefit for pollinators and other invertebrates.

Refer to the Ecological Impact Statement for further detail.

4.8 Air pollution

What measures have been/will be taken to reduce air pollution associated with your proposed development?

Air quality impacts

An Air Quality Assessment has been undertaken for the Development, investigating the air quality impacts during both the construction phase and the operational phase of the proposed development.

The air quality impacts associated with the construction phase (earthworks, construction and track-out) have been assessed. The measures to minimise emissions from construction activities have been proposed, covering communications, site management, monitoring, site preparation and maintenance, operations, waste management. Mitigation measures specific to construction and track-out have similarly been considered. The impact from construction traffic emissions was found to be negligible. It is proposed that the mitigation measures for construction phase should be incorporated into the development's Construction Environmental Management Plan.

During the operational phase, air quality impacts will arise from two key emissions sources: combustion plant equipment and operational traffic. Owing to the outline nature of the application, the energy strategy for the proposed development is not finalised and the two options that are being considered predominantly rely on emission free plant equipment (heat pumps), and so would not likely lead to any significant air quality impact.

With respect to the operational traffic emissions, the proposed development will lead to an increase of traffic on the local road network. However, the dispersion modelling results have shown that the air quality impact of operational traffic at existing sensitive receptors during the opening year (2030) is negligible. It is recommended that monitoring should be undertaken near to the junction at Forge Lane, prior to construction up to full build out, to ascertain the real time impact of the development traffic. The measures to minimise the impact of traffic on local air quality during the operational phase have been proposed and will be confirmed at the detail design stage.

The Air Quality Assessment should be referred to for further detail.

Copyright © 1976 - 2021 Buro Happold. All rights reserved

Sustainable travel measures

The Site is located within a highly sustainable location, accessible to a wide range of existing facilities and forms of public transport which will help minimise the reliance of new residents of the private car in accessing local services and amenities, shops and sources of employment.

To further promote sustainable transport, a site-specific Transport Assessment and a Travel Plan for the Development have been prepared in support of the planning application. The transport assessment concluded that sustainable travel is a viable and attractive mode of transport for future residents of the Site.

An initial five-year target for an increase in sustainable travel of 5% from the Census data for the Development has been set in the Travel Plan. In order to achieve the target, the following SMART measures are proposed:

- Appoint Travel Plan Coordinator
- Undertake initial travel surveys
- Provide a long-term cycle parking space within the curtilage of each dwelling
- Offer each dwelling a bus taster ticket
- Agree Mode Split Targets
- Carry out travel plan monitoring
- Provision of local cycle map and public transport information/weblinks
- Promote health and financial benefits of walking and cycling within Travel Leaflet
- Produce Travel Leaflet and display/distribute in sales office
- Promote walk and cycle initiatives such as 'The Big Pedal'
- Promote Walkit.com
- Promote car share database
- Promote travel websites within the Travel leaflet
- Promote Personalised Travel Planning
- Provide contact details of local licenses taxi operators
- Extend Travel Plan Co-ordinator role by 2 years if targets not met

Transport Statements and Travel Plan should be referred to for more detail.

In addition to the above, the communal electric vehicle charging points (EVCPs) will be provided at the Development, supporting the provision of alternative sustainable transport options while reducing associated congestion and carbon emissions and improving air quality. The number of EVCPs will be confirmed at a later stage once the demand is determined.

Responsible sourcing of materials

As noted under the Section 4.2 Embodied Carbon and Waste, locally sourced materials will be considered where practical. This will reduce the embodied carbon associated with transporting materials as well as air pollution associated with vehicular movements.

Copyright © 1976 - 2021 Buro Happold. All rights reserved

5 Conclusion

This Climate Change Statement seeks to demonstrate compliance against current Kirklees Council planning policy. The Climate Change Statement has been structured around eight topics, in line with the Council's requirements for climate change adaptation and mitigation:

1. Energy
2. Embodied carbon and Waste
3. Renewable and low carbon energy
4. Building design and layout
5. Flooding
6. Water usage
7. Landscape and Biodiversity
8. Air pollution

It can be seen from the project responses that the Development is employing best practice climate change mitigation and adaptation strategies, incorporating all essential considerations and a wealth of desirable considerations into the design proposals. The table below provides a concluding picture of the sustainability strategies that the Development is considering implementing in support of the Council's commitment to climate change mitigation and adaptation and net zero targets.

Sustainability theme	Development response
Energy	Sustainable energy supply options and user-tailored energy saving solutions
Embodied carbon and Waste	Circular economy principles, Resource Management Plan, sustainably sourced materials
Renewable and low carbon energy	Sustainable energy supply options, low and zero carbon feasibility study
Building design and layout	Energy hierarchy principles (mean-lean-green), including energy demand reduction and energy-efficient building services systems
Flooding	Site-specific Flood Risk Assessment and a Surface Drainage Strategy with 40% allowance for Climate Change
Water usage	Water efficient fittings, water monitoring and leak detection systems
Landscape and Biodiversity	Biodiversity net gain, sustainable drainage features
Air pollution	Air Quality Assessment, Construction Environmental Management Plan, highly sustainable location, emission free plant equipment, five-year target for an increase in sustainable travel of 5% post-construction

Copyright © 1976 - 2021 Buro Happold. All rights reserved

Copyright © 1976 - 2021 Buro Happold. All rights reserved

Denas Karnauskas
Buro Happold Limited
3 Wellington Place
Leeds
LS1 4AP
UK

T: +44 (0)113 204 2200
F: +44 (0)870 787 4144
Email: Denas.Karnauskas@BuroHappold.com