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THE GEORGE HOTEL
SUSTAINABILITY STATEMENT

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Ramboll
1 Broadgate
The Headrow
Leeds
LS1 8EQ
United Kingdom

T +44 1132457552
https://uk.ramboll.com

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Ramboll UK Limited
Registered in England & Wales
Company No: 03659970
Registered office:
240 Blackfriars Road
London
SE1 8NW

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EXECUTIVE SUMMARY

This sustainability statement sets out the environmental sustainability strategy for the major refurbishment of The George Hotel, Huddersfield.

The project involves the refurbishment of the Grade II Listed building ("block A"), together with a façade retention scheme (facing John William Street) and two new build blocks ("block B" and "block C")

The statement details the approach that the design team have agreed to achieve a high standard sustainable development and outlines the features that will be included in the project design, as well as the measures that will be implemented during the construction and operations stages.

The proposed refurbishment works will be completed to the current Building Regulations which govern the standards of the refurbishment works.

Kirklees Council declared a climate emergency in 2019, and have a vision for a net zero and climate ready Kirklees by 2038

The proposed development's performance against Kirklees Council's vision, industry best practice and standards has been considered through the design stages.

The purpose of this sustainability statement is to verify that the proposed design is in accordance with current standards, Kirklees Councils vision and Radisson Red Hotel operational specifications, together with the age and listed status of the building and the constraints imposed as a consequence.

The sustainability statement demonstrates that the refurbishment is an 'enabler' and will put The George Hotel on a pathway towards becoming a net zero carbon building in the future.

1. INTRODUCTION

The sustainability statement has been compiled to summarise the design team's approach to sustainability.

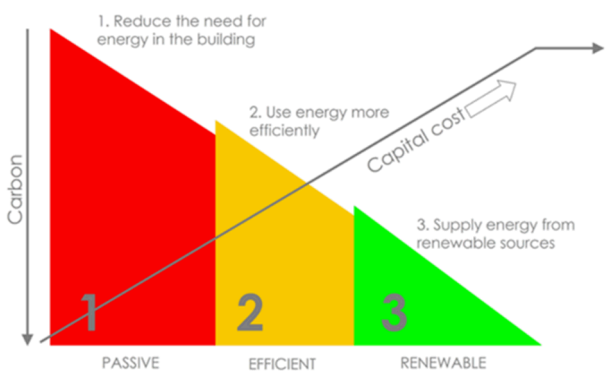
The George Hotel has not been occupied for the last 12 years and has become derelict in that time. Major refurbishment and new build works are required in order to bring The George Hotel up to modern standards and to align with the Radisson Red Hotel operational specifications.

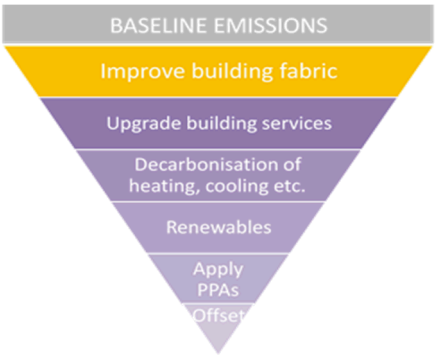
What remains of the existing MEP installations that once served the George Hotel are no longer fit for purpose and cannot be re used. The majority of the main MEP plant and equipment has been removed at some point in the last 12 years; some air handling plant, duct and pipework distribution remains, along with the incoming power supply.

The intention is to strip out and replace all existing mechanical and electrical services systems with new, modern fit for purpose efficient systems which will provide the correct internal environment together with a building energy management system maximising operational control and monitoring of each system.

The following hierarchy for energy reduction will be followed:

- Use less energy: reduce demands, prioritise passive measures
- Use energy efficiently: highly efficient systems, recover energy, metering and controls
- Remove reliance on fossil fuels and utilise renewable energy
- Verify and optimise in use.





Sustainability Dialogue Tool

Utilising Ramboll's Sustainability Dialogue Tool the design team have reviewed sustainability in the built environment in relation to The George Hotel and generated a summary report.

We have reviewed eight priority areas and their themes, for every theme we have identified a level of ambition from 1 to 5. 1 being "compliance with local requirements or building code" and 5 being "world class"

The eight themes.

1, CO2 emissions

2, Circular Economy

3, Health and Wellbeing

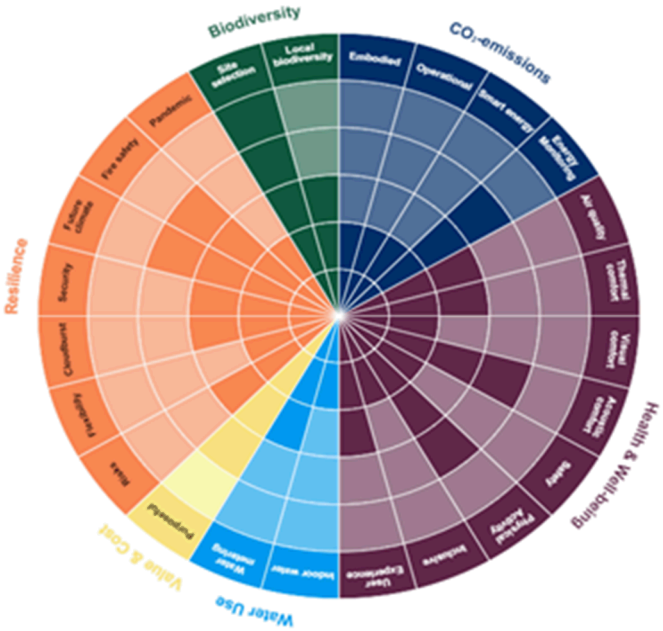
4, Water Use

5, Cost and Value

6, Resilience

7, Biodiversity

8, Just transition



As a design team, in collaboration with the client we have agreed where to focus our efforts in relation to sustainability specifically for the George Hotel. A graphical illustration, (the colourful sustainability wheel above), summarises the sustainability profile of the project and provides a visual indication of priorities. The sustainability dialogue tool report for the George Hotel is contained appendix A of this report.

To facilitate the sustainability profile developed and to reduce energy consumption and CO_2 emissions for The George Hotel we have reviewed numerous potential fabric and MEP services interventions, the key interventions are as follows:

Proposed interventions to the existing building fabric:

- Building fabric – through the inclusion of additional thermal insulation wherever possible, such as within the roofs and walls to reduce heat losses and gains
- Utilising the benefits of thermal mass
- Windows – replace windows where possible with high performance double glazed units to reduce heat losses, gains and uncontrolled infiltration.
- Air permeability – reduce air leakage paths, thereby reducing uncontrolled infiltration.
- Consideration of selection of materials used

Proposed Interventions new build fabric:

- High performance thermal insulation
- High performance glazing
- Low air permeability
- Consideration and selection of materials used

The proposed mechanical and electrical services systems will act as an enabler and will put The George Hotel on a pathway towards a net zero carbon in operation in the future.

Removing the need for gas and providing all the buildings energy needs by electricity puts The George Hotel on the first step on the pathway towards net zero carbon in operation. As the national electricity grid de-carbonises over time (i.e. the amount of carbon emitted for kWh generated reduces) the electrical supply will eventually become "green" i.e the electricity supply will be generated via renewable technology. However it is essential in the first instance that the energy consumption of the Hotel is minimised through passive and high efficiency MEP engineered solutions, reducing the electrical load drawn from the grid in the first instance. Finally, we will consider the use of renewable technologies where appropriate to further drive down electricity drawn from the grid.

The proposed mechanical and electrical services systems include:

- Remove all reliance on fossil fuels, moving to an all-electric building
- Lighting - LED, together with daylight linking, absence and presence detection light control systems.
- Heating and cooling - Air Source heat Pumps (ASHPs), providing heating and cooling throughout
- Ventilation - Mechanical ventilation complete with heat recovery providing full fresh air, together with temperature and CO_2 control. Natural ventilation where suitable i.e the atrium
- Domestic Hot Water – Air Source heat Pumps (ASHPs), providing domestic hot water throughout
- Building Energy Management System – A complete BEMS system will provide full monitoring and optimised control of the building services systems.
- Renewables – A photovoltaic array on the south facing pitched roof(s) if considered feasible following further analysis.

BREEAM

A BREEAM rating of very good has been targeted for the George Hotel under the BREEAM "Rerfurb Fit Out – Bespoke 2014" assessment.

A BREEAM pre assessment has been completed, together with a tracker, both were developed during RIBA stage 2 and identify the targeted credits.

2. KEY DRIVERS

Sustainable development is defined within the terms of Resolution 24/187 of the United Nations Assembly, which states:

"Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs."

The United nations 2005 World Summit Outcome Document refers to the "Interdependence and mutually reinforcing pillars" of sustainable development as economic development, social development and environmental protection.

The National Planning Policy Framework (NPPF) (19th February 2019) aims to, amongst other things, encourage sustainable development by introducing the "presumption in favour of sustainable development" (paragraph 14). Sustainable development will be delivered by focusing on the following three areas:

Economic – contributing to building a strong, responsive and competitive economy, by ensuring that sufficient land of the right type is available in the right places and at the right time to support growth and innovation; and by identifying and coordinating development requirements, including the provision of infrastructure.
Social – supporting strong, vibrant and healthy communities, by providing and increased supply of housing to meet the needs of the present and future generations; and by creating a good quality built environment, with accessible local services that reflect the communities needs and supports health and wellbeing.
Environmental – contributing to protect and enhance our natural, built and historic environment, and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution and mitigate and adapt to climate change, including moving to a low carbon economy.

Climate change and the need to stabilise CO_2 levels in the atmosphere, whilst enabling sufficient growth to support the UKs growing population, presents a challenge. There are a range of legislation and policy directives (renewable energy, energy performance of buildings, construction products, water framework and biodiversity) and supports the design and implementation of measures and approaches to ensure new development is sustainable and low carbon. National legislation incorporating sustainable development includes:

Planning and Compulsory Purchase Act (2004) – requires "the person or body must exercise the function with the objective on contributing to the achievement of sustainable development"
Climate Change Act (2008) – sets a legally binding target for reducing UK:

- CO_2 emissions by at least 80% by 2050

Floods and Water Management – Act (2010) – requires that exercising a flood of coastal erosion risk function, an authority must aim to make a contribution towards the achievement of sustainable development. This act sets out the sustainable urban drainage systems (SUDs).
The Localism Act (2011) – introduces greater powers for plan making at a local level, but this must be achieved with a general presumption in favour of sustainable development.
Building Regulations – Part L the conservation of fuel and power.

Kirklees Council – Local Plan & Climate Action Plan

Kirklees Council declared a climate emergency in 2019, and have a vision for a net zero and climate ready Kirklees by 2038.

3. BENCHMARKING

The refurbishment of The George Hotel aims to promote sustainability principles through the provision of a comfortable and safe built environment and maximise the potential for energy efficiency for the proposed building services.

A Display Energy Certificate does not appear to be registered to The George Hotel, therefore details of previous energy consumption is not available.

It is proposed to strip out and replace all existing mechanical and electrical services systems with new, modern fit for purpose efficient systems which will provide the correct internal environment together with a building energy management system maximising operational control and monitoring of each system. All feasible measures will be taken to reduce loads in the first instance through passive design measures, as described, followed by the installation of energy efficient systems and finally the introduction of renewable technology where appropriate.

4. SUSTAINABILITY STRATEGY

4.1 Energy consumption and CO_2 emissions reduction

The proposed design will put The George Hotel on the pathway to a net zero carbon future by 2038 in accordance with Kirklees Council's vision

4.1.1 Operational Carbon

The new mechanical and electrical services systems have been developed to minimise the CO_2 emissions associated with their operational energy consumption. A new building energy management system will monitor and maximise operational efficiency.

The proposal includes the removal of fossil fuels, with The George Hotel becoming powered entirely by electricity. The refurbishment includes the introduction of an air source heat pump system providing heating, cooling and domestic hot water, rather than the traditional gas fired boiler plant.

The thermal properties of the building elements where possible within the constraints of the refurbishment and listed status of the building will be improved. The new build elements will incorporate high performance thermal properties throughout.

The combination of the improvements to thermal properties, the electrification of the building, the introduction and the ongoing decarbonation of electricity drawn from the grid will continue to reduce the operational carbon emissions of The George Hotel.

4.1.2 Embodied Carbon

Embodied carbon is the carbon dioxide equivalent (CO_2e) emissions associated with the non-operational elements of the development contained with both the existing structure and the new materials proposed as part of the refurbishment.

Examining carbon intensity through the type and layout of a development enables a response to measure and mitigate the impacts of climate change. Embodied carbon is considered a growing proportion of the total attributable to the built environment due to the production of materials.

The proposals include for the reuse of the fabric of the existing structure where possible, ensuring that the embodied carbon is retained with life span of the building extended. The proposals include for the sourcing of natural and renewable materials wherever possible.

The whole life carbon of a development accounts for the sum of the operational carbon during the whole life cycle of the project and the total embodied carbon.

The refurbishment will be designed to have a minimum whole life carbon footprint due to the saving in operational energy and embodied carbon respectively.

4.1.3 Carbon sequestration features

The fact that the existing listed structure and listed facade facing John William Street is to be largely retained means that the embodied carbon stored with the existing materials is retained for the remaining life of the building.

For example the existing timber within the listed building will continue to store all the carbon absorbed during the numerous trees lifetimes and by retaining instead of replacing no new carbon emissions will be generated. These material can then be recycled at the eventual end of the buildings extended life.

4.2 Water management and flood resilience

The refurbishment will minimise the consumption of potable water through the careful selection and specification of low water usage appliances in accordance with building regulations. The following appliances have been assessed and will be incorporated:

- Water efficient taps
- Low flow WCs
- Low output showers
- Flow restrictors to manage water pressure to achieve optimum levels.

The existing below ground drainage is a combined private system which connects to the public combined sewer in the highway. This project gives the opportunity to separate foul and storm water wherever possible, so that if in the future the public system is also upgraded to have foul and storm sewers, less flow will need to be treated as foul.

The drained roof and hardstanding area of the building is not increased as all the new elements sit within the footprint of the existing buildings, thus the storm water flow has not been increased.

Options for SUDS have been considered and discussed at high level with the LLFA and it has been determined that the listed building (block A) and the new atrium roof (existing courtyard) areas are to remain unattenuated as they are, in principle, to remain unchanged. New builds (blocks B & C) are to be attenuated, the options for which are currently being assessed, current proposals are to use a tank and hydrobrake, or a blue roof system as a means of achieving a 50% betterment in surface water run-off rates from blocks B&C.

4.3 Materials

Materials will be selected with environmental impact considered alongside functionality, aesthetics and durability. The procurement of materials will be sourced in a responsible way and have a low embodied carbon impact over their life. Construction materials with low environmental impact over the full life cycle of the building have been considered.

Materials that can be sustainably sourced have been considered, such as timber products sourced from accredited Forest Stewardship Council (FSC) or programme for the Endorsement of forestry Certification (PEFC) source. The intent is to select suppliers of materials based on whether they can provide an environmental management system (EMS) or other recognised responsible sourcing certification scheme (RSCS) certificate.

Materials that are durable enough to cater for their level of use and exposure and that will not release toxins into the internal and external environment (e.g. low VOCs), including those that deplete stratospheric ozone (e.g. CFCs, HCGCs) will be used.

4.4 Waste

The principle of reusing the existing building elements where possible automatically reduces waste and material use.

The design of the new elements includes the reuse of existing walls and foundations, together with some new piled foundations, therefore reducing waste.

Waste reduction is a key principle of sustainable development, for this project it is construction waste that must be considered, the successful contractor will be expected to incorporate various techniques to reduce waste.

Construction waste is a key element to be considered in achieving reduction in all waste. It is estimated that some 40% of all waste is construction related. Measures for reduction of waste during construction include:

- Appropriate construction methods and effective management: and
- Re-use/recycling of materials on site.

The reduction of waste materials arising from construction can be reduced by introducing regular audits to monitor and control site activities more closely, for example, reviewing materials ordering and site practices to prevent damage and cross contamination. Surveys have found that detailed attention to quality of materials purchased and the way that these are offloaded, labelled and stored, can significantly reduce the amount of material wasted. Wherever possible, the use of packaging and non-returnable pallets will be avoided, or they will be recycled or reused.

The site waste management plan will include procedures to sort, reuse and recycle construction waste and will result in various benefits for the project.

Adequate storage for recycling will be provided around the construction site in accordance with the local authority contractors: typically waste will be segregated into two streams, general and recyclable waste.

Recycling of materials from the construction waste stream can provide valuable construction materials and relieve the existing pressure on landfill. By maximising the value extracted from these materials and extending their life in this way reduces the demand on new materials creating long term benefits on our precious resources.

4.5 The considerate constructors scheme encourages environmentally and socially considerate ways of working.

Locations sensitive to dust emitted during construction will be places where members of the public are regularly present.

The greatest potential for construction impacts this project will be from the handling and cutting of materials. The successful contractor will seek to minimise the negative impacts of air quality during construction.

Noise pollution can be a problem especially for local residents during construction. The main phases giving rise to the greatest impacts upon any local residents will be:

- Main construction activities
- General construction
- Vehicle movements

The implementation of adequate mitigation measures related to materials and systems, air quality, external light and noise will be adopted.

4.6 Health and wellbeing

The refurbishment of The George Hotel will bring this historic building back to life for current and future generations and will provide the public with a fantastic facility.

The refurbishment will ensure a fully accessible, healthy and comfortable environment for staff, and guests by designing for thermal and visual comfort, air quality, water quality and controllability of the indoor environmental conditions.

4.7 Management

Through a consultation process the project team has involved the relevant stakeholders in the design process in order to deliver a functional, accessible building.

The construction site will be managed in an environmentally and socially considerate manner by contractually requiring the successful contractor to comply with and go beyond best practice principles under a local or national certification scheme such as the Considerate Constructors Scheme (CCS). The principal contractor will operate an environmental management system (EMS) covering their main operations and will implement best practice pollution prevention policies and procedures on site in accordance with Pollution and Prevention Guidelines (PPG). The principal contract will also exceed the compliance criteria of a considerate construction scheme (CCS).

Energy use, water consumption and transport data resulting from the on site construction processes will be monitored, recorded and reported.

An appropriate level of building services commissioning will be carried out to ensure optimum performance under actual occupancy conditions, Seasonal commissioning over a minimum of 12 months after occupation will be completed.

A building user guide (BUG) for the refurbishment will be provided to the FM team and staff. This non technical and simple user guide will cover the information on the operation and environmental performance of the building. A training schedule for the FM team and staff will also be prepared and delivered around the time of hand over.

5. CONCLUSION

This sustainability statement has been directed by a range of drivers including planning and legislation, industry best practice, constraints and financial considerations.

Kirklees Council and the design team are committed to sustainable development, whilst having regard to the future of the area as a whole. As a result, the development standards set out for this emphasise the importance of sustainable development, focusing on economic, social and environmental goals.

This refurbishment will contribute to local sustainability aims, as well as meeting national and regional objectives.

In summary, sustainability has informed the design process by identifying opportunities and constraints for sustainable development, the proposed refurbishment is therefore considered to respond to both local and regional planning policy requirements.