ATKINS

Member of the SNC-Lavalin Group

Thames Young Mariners

Sustainability Statement

Surrey County Council

12 October 2022

Notice

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Document history

Document title: SCC – SOLD Thames Young Mariners

Document reference: Sustainability Statement

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
1.0	First Draft for comment	EO	JF	AS	AS	03/10/2022
2.0	Planning	EO	JF	AS	AS	12/10/2022

Client signoff

Client	Surrey County Council
Project	SOLD – Thames Young Mariners
Job number	5210336
Client signature/date	

Contents

1. Executive Summary

The following Sustainability Statement is written for the Thames Young Mariners project in Surrey County Council. The report:

- Summarises the relevant regulatory policies outlined in key National planning documents, Surrey County Council planning documents and London Borough of Richmond upon Thames planning documents;
- Reviews the sustainability credentials and how they're being achieved for this project by following a BREEAM New Construction 2018 assessment methodology, aiming to achieve an 'Excellent' rating. BREEAM assesses the sustainability rating of a new non-residential development against 10 categories of sustainable design, the measures taken to achieve this are summaries below:

Table 1-1 - Key measures taken to meet BREEAM sustainability criteria

Sustainability Opportunity	Measures Taken
Management	Sustainable management practices in connection with design, construction, commissioning, handover and aftercare will be adopted. • **Project Brief** will establish project targets such as Net Zero at an early Stage • **Life Cycle Costing** will be taken into account for a realistic budget • **Responsible Construction Practices** will be adopted by making continuous improvements (i.e., reducing utility consumption) • **Commissioning and Handover** will be carried out carefully to identify and rectify any defects that could affect operation
Health and Wellbeing	• Low VOC, low formaldehyde, and asbestos free materials will be used and MVHR systems will be implemented for good **Indoor Air Quality** • **Thermal Comfort** will be achieved by implementing the cooling hierarchy, and where cooling is required, it will be provided • **Daylighting** assessments show that the assessed rooms pass the BR 209 Average Daylight Factor and No-Skyline criteria. The analysis of the Sky View also indicates that at least 80% of the floor area of all tested habitable rooms have a view of the sky, thus complying with BRE's guidance. • Internal noise levels meet the WHO recommendations, showing good indoor **Acoustics** levels • The development will enhance the local **Social Value** by tackling health inequality, empowering communities, improving the lives of residents, encouraging environmental sustainability and inclusivity • A **Secure** environment will be provided for the building/facility users

Energy	• **Passive** (fabric) **and Active** (lighting, space heating, water heating, ventilation, energy generation, controls) measures have been implemented to minimise the operational carbon of the development
Water	• **Water** for appliance use has been minimised through the use of low flow fittings, leak detection systems and metering
Materials	• **Embodied Carbon** emissions will be minimised by following the six key aims of the LETI guidance and sourcing all timber-based products from credible sources
Transport	• **Transport** to the site is available with local bus routes, cycling and driving. There is provision for parking and cycle storage
Waste	• SCC **Waste** management targets will be met, and the waste hierarchy and circular economy principles will be followed. Refuse storage will be provided and easily accessible for collection. Demolition processes will segregate different waste streams and remove them from site following all relevant regulations. Concrete will be supplied pre-mixed.
Land Use and Ecology	• **Land Use and Ecology** provisions ensure that there's a net gain in biodiversity for the developed area and all risks and opportunities are taken into account
Pollution	• **Flood Risk** is deemed to be low to negligible based on historical events. Due to the variability in ground conditions, the development will likely adopt a combines attenuation and infiltrations SuDS system • The predicted **Noise** levels at nearby houses were found to be well below the noise levels recommended in WHO for indoor and outdoor amenity areas • **Light Pollution** will be minimised by switching off unrequired lighting • **Local Air Quality** will not be negatively impacted as the development is fully electric in operation. Furthermore the presence of EV charging points and cycle storage encourages emission-free transport to the site

Additionally, a Sustainable Construction Checklist SPD has been completed as part of the planning application, as per the requirements of the London Borough of Richmond upon Thames Local Plan (2018).

2. Introduction

Surrey County Council has committed to achieve Net Zero Carbon for Council Operations by 2030 with the County of Surrey achieving Net Zero Carbon by 2050. In addition to achieving Net Zero Carbon SCC has an ongoing commitment to improving the environmental sustainability within the county as part of its Greener Futures Initiative.

Atkins has been appointed by Surrey Country Council (SCC) to produce a Sustainability Statement. The Sustainability Statement summarises the relevant regulatory and planning policies applicable to the Thames Young Mariners (TYM) (hereafter "the Proposed Development") and outlines how the Proposed Development responds to national, regional, and local planning policy related to sustainable design and construction. These policies include:

- Key National planning documents:
  - National Planning Policy Framework (2021)
  - The London Plan (2021)
- Key Surrey Country Council planning documents:
  - SCC Organisation Strategy
  - SCC Climate Change Strategy
  - SCC Transport Strategic Plan
  - Climate Change Delivery Plan (CCDP)
- Key London Borough of Richmond upon Thames planning documents:
  - London Borough of Richmond upon Thames Local Plan (2018)
  - Ham and Petersham Neighbourhood Plan (2019)
- National Building Regulations
  - Approved Document Part L (2021)

2.1. Development Description

TYM currently provides outdoor learning programmed through day visits to a wide range of users. However, the site currently has a very 'seasonal' nature due to the restrictions of facilities and activities on the site, with the bulk of programme taking place between April and October. The current facilities limit the scale of what can be offered and are very dated, meaning they restrict the type of programme which can be offered. The layout of the existing buildings is no longer fit for purpose, causing significant challenges to security, maintenance, safeguarding and positive learning environments.

The proposed development will consist of a new build facility to provide guest residential accommodation, changing & personal care, dining hall & full catering service kitchen, administrative space, storage, outdoor activity space and associated glamping provision.

The proposed development's area schedule is given in Table 2-1:

Table 2-1 - TYM Area Schdule

Schedule	Building Provision	Approx GIA	Quantity	Total Area (sqm)
1.0	Main Building + Staff Accommodation	1009	1	1009
2.0	Guest Residential Accommodation	255	3	765
3.0	Camping Changing Block	200	1	200
			Total GIA (sqm)	1974.00

Figure 2-1 - Proposed site plan

The proposed buildings are shown highlighted in yellow in Figure 2-1and are labelled as per the numbering in the area schedule above.

2.2. Site Context

TYM is a water activity venue on the Thames, between Kingston and Richmond. It is one of three sites operated by SCC for their Surrey Outdoor Learning & Development (SOLD) programme.

The site offers access to natural environments such as water and woodlands to local communities, making a significant positive impact on people's lives. The investment at TYM will contribute towards the Council's "Community vision for Surrey 2030", particularly fulfilling the ambitions below:

- Children and young people are safe and feel safe and confident.
- Everyone benefits from education, skills and employment opportunities that help them succeed in life.
- Everyone lives healthy, active and fulfilling lives, and makes good choices about their wellbeing.

- Residents live in clean, safe and green communities, where people and organisations embrace their environmental responsibilities.

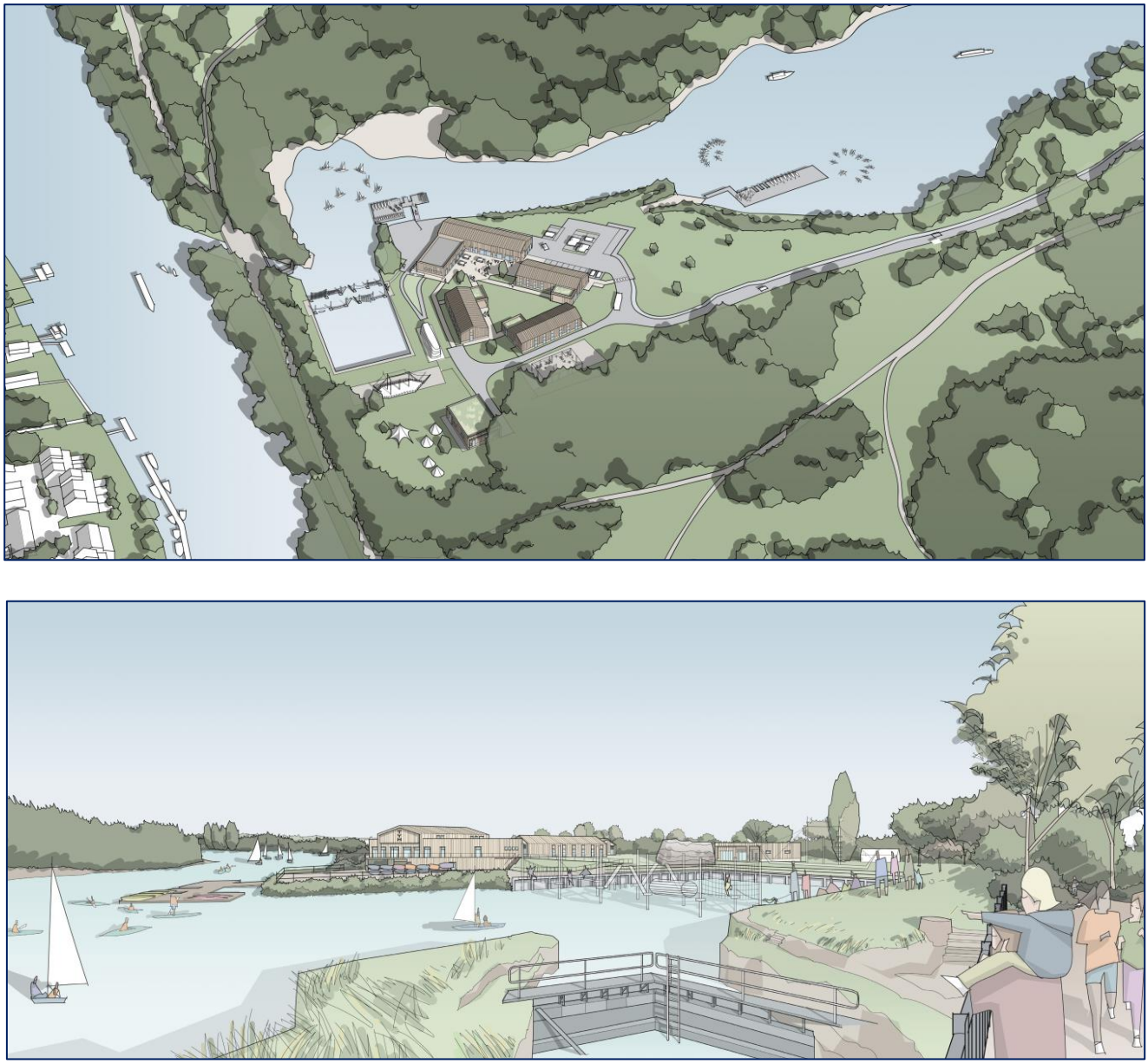

Figure 2-2 - Site context

3. Policy Requirements

3.1. Key National Planning Documents

3.1.1. National Planning Policy Framework (2021)

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. The framework sets out three overarching objectives to achieve a sustainable development, these are:

a) **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;

b) **A social objective** – to support strong, vibrant and heathy 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 well0designed, beautiful and safe places, with accessible services and open spaced that reflect current and future needs and support communities' health, social and cultural well-being; and

c) **An environmental objective** – to protect and enhance our natural, built and historic environment, including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

The framework also sets out detailed guidance for the following topics that contribute to delivering sustainable development:

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

3.1.2. London Plan (2021)

The London Plan is a Spatial Development Strategy (SDS) published by the Mayor of London under the legislation of the Greater London Authority (GLA). It includes a range of policies that relate to sustainable design and construction. In developing the SDS, in accordance with the legislation and associated regulations, the Mayor has had regard to:

- The principle that there should be equality of opportunity for all people
- Reducing health inequality and promoting Londoners' health
- Achieving sustainable development in the United Kingdom
- Climate change and the consequences of climate change
- The desirability of promoting and encouraging the use of the Thames, particularly for passenger and freight transportation
- The resources available to implement the Mayor's strategies

Developments within Richmond are subject to the policy requirements of the London Plan 2021. The following policies of the London Plan (2021) have informed this strategy.

Policy GG1 Building strong and inclusive communities

Policy GG2 Making the best use of land

Policy GG3 Creating a healthy city

Policy GG6 Increasing efficiency and resilience

Policy D1 London's form, character, and capacity for growth

Policy D2 Infrastructure requirements for sustainable densities
Policy D3 Optimising site capacity through the design-led approach
Policy D4 Delivering good design
Policy D5 Inclusive design
Policy D8 Public realm
Policy D12 Agent of change
Policy D13 Noise
Policy S1 Developing London's social infrastructure
Policy S5 Sports and recreation facilities
Policy G1 Green infrastructure
Policy G3 Metropolitan Open Land
Policy G6 Biodiversity and access to nature
Policy G7 Trees and woodlands
Policy SI2 Minimising greenhouse gas emissions
Policy SI3 Energy Infrastructure
Policy SI7 Reducing waste and supporting the circular economy
Policy SI16 Waterways – use and enjoyment
Policy SI17 Protecting and enhancing London's waterways

3.2. Surrey County Council (SCC) Key Planning Documents

3.2.1. SCC Organisation Strategy

Introduction

The SCC Organisation Strategy sets out the Community Vision for Surrey in 2030. The document includes SCC strategic context, SCC progress since 2018 and guiding principles and objectives for the next five years. The strategy demonstrates the SCC plan for how, over the next five years, SCC will work towards achieving the outcomes in the 2030 vision and focus on making a real difference to the residents' lives.

Vision

By 2030, SCC aims to be a uniquely special place where everyone has a great start to life, people live healthy and fulfilling lives, they are enabled to achieve their full potential and contribute to their community, and no one is left behind. Surrey organisation strategy sets out Surrey County Council contribution to the Community Vision for Surrey in 2030, where the council wants the country's economy to be strong, vibrant, and successful and for Surrey to be a great place to live, work and learn. A place that capitalises on its location and natural assets, and where communities feel supported, and people are able to support each other.

SCC Priority Objectives for the next five years

SCC has identified four priority objectives to contribute to the SCC 2030 vision. They are:

- Growing a sustainable economy so everyone can benefit
- Tackling health inequality
- Enabling a greener future
- Empowering communities

SCC's Environmental Policy and Action Plan

SCC has an Environmental policy and related Action Plans that identify five themes for action:

1. Embedding sustainability: to include environmental considerations in decision making across council services.
2. Climate change resilience: to work with partners to build the resilience of the communities and estate to climate impacts.

3. Operation and estate efficiency: to make the buildings, operations, and services as resource efficient and low cost as practicably possible.
4. Procurement: to work with suppliers to reduce the environmental impact of the goods and services they deliver for us and reduce our supply chains exposure to environmental risks.
5. Air quality: to reduce emissions from transport and improve air quality across the county through sustainable transport options.

3.2.2. SCC Climate Change Strategy

Introduction

SCC's Climate Change Strategy has been developed to face the impacts of climate change daily, and to provide a joint framework for collaborative action on climate change across Surrey's local authorities and other partners. Strategic priorities and accompanying actions will deliver against SCC emissions reduction targets, identified through the creation of a science-based carbon neutral pathway. These actions have been developed to build upon existing strategies, as well as working with emerging strategies, to create a comprehensive and coordinated response to the climate emergency.

The SCC Climate Change Strategy:

- Establishes SCC's carbon baseline, carbon pathway and required reductions to achieve 2050 Net Zero
- Incorporates Strategic Priorities aligned to the "avoid, shift and remove" hierarchy: reducing journeys, shifting to an increased use of public and active transport modes, and developing zero emission vehicle options 60% emissions reduction in the transport sector by 2035 against "Business As usual" (BAU), as a minimum
- Identifies the need to improve local air quality for better health and wellbeing of residents.

Key Policy Areas and Structure

SCC's Climate Change Strategy sets out a joint ambition of local authorities across the county to address carbon emissions for eight major sectors.

1. Organisation Emissions

- **Ambition Statement:** Achieve net zero carbon local authorities that lead by example in promoting sustainable practices across their operations, estate, and vehicles.
- **Target:**
    - Net zero carbon for all Surrey's local authorities by 2035 or sooner
    - Net zero carbon for SCC's organisational emissions by 2030 or sooner
- **Strategic Priorities (SP):**
    - **SP1:** Use net zero carbon energy across our council-owned buildings, and in the longer term, look to transition to net-zero carbon buildings, as defined by the UK Green Building Council (UKGBC) framework.
    - **SP2:** All council-owned vehicles, including SCC-owned bus fleet, to be zero carbon by 2030 or sooner.
    - **SP3:** Use our influence across our supply chain through procurement practices to drive significant carbon emission reductions in the operations of our staff, suppliers, and partners.

2. Transport and Air Quality

- **Ambition Statement:** Deliver and promote an integrated, accessible, affordable, and reliable public and active (walking or cycling) transport system across the County, thereby reducing journeys and improving local air quality for improved health and wellbeing of our residents.
- **Target:** 60% emissions reduction in the transport sector by 2035 against BAU as a minimum
- **Strategic Priorities (SP):**
    - **SP1:** Prioritise investment in place-based development that creates well connected communities close to high quality places, spaces, and services to reduce the number and length of car journeys for all residents.

- **SP2:** Invest in initiatives and infrastructure to increase the uptake of walking, cycling and public transport, alongside schemes to reduce reliance on the car e.g., ultra-low emission zones, pedestrianisation and car-free zones.
- **SP3:** Invest in and support the development of the infrastructure required to support the move to zero emission vehicles for journeys that cannot be made on foot, by bicycle or public transport.

3. Energy Generation

- **Ambition Statement:** To support the national decarbonisation ambition by leading renewable energy generation expansion and bringing low carbon heating into Surrey homes through smart, decentralised systems.
- **Target:**
  - 15% of energy from solar PV by 2032
  - 69,000 tonnes CO_2e per annum by 2050 saved from solar PV on public and commercial buildings
- **Strategic Priorities (SP):**
  - **SP1:** Expand renewable energy generation capacity across the county with a focus on solar PV installations as the greatest carbon reduction potential.
  - **SP2:** Develop localised smart energy systems that focus on providing low carbon energy to local businesses and residents, whilst reducing costs.

4. Housing and Planning

- **Ambition Statement:** To create low carbon, healthy homes for our residents that reduce emissions, have lower running costs, and improve the wellbeing of our community.
- **Target:** 66% emissions reduction in the domestic housing sector by 2035 against BAU as a minimum
- **Strategic Priorities (SP):**
  - **SP1:** Seek and support the retrofit of existing residential housing to enable alignment with more demanding energy efficiency standards, improve their adaptation qualities, whilst delivering significant savings to residents.
  - **SP2:** Review and update local planning policy frameworks, as well as seeking a stronger National Planning Policy Framework (NPPF), to facilitate the delivery of low-carbon, energy efficient new residential development that produces a minimum 10% net-gain in biodiversity.
  - **SP3:** Promote residential development that is sustainably located and allows safe and easy access for residents to existing services and transport hubs.

5. Buildings and Infrastructure

- **Ambition Statement:** To drive forward the transition to a zero carbon built environment, through the pursuit of lower operational energy use, increased supply of renewable energy to Surrey's buildings and reduced embodied carbon – the GHG emissions associated with non-operational phases e.g. construction.
- **Target:**
  - 61% emissions reduction across commercial and public buildings by 2035 against BAU as a minimum
  - 100% reduction in CO_2e from municipal buildings by 2030
- **Strategic Priorities (SP):**
  - **SP1:** Significantly improve the energy efficiency standards and practices of commercial buildings in Surrey to reduce energy consumption whilst reducing the cost for businesses.
  - **SP2:** Review and update planning policy to produce infrastructure that is better integrated, enabling the delivery of wider ambitions on local renewable energy generation and vehicle electrification.
  - **SP3:** Work with stakeholders to develop a systems-based approach to development and infrastructure that considers the whole-life cycle of construction, including water consumption, and promotes the integration of green infrastructure for climate change adaptation.

6. Waste, Resources and Circular Economy

- **Ambition Statement:** Rethink our current approach to waste, to create a system centred on circular economy principles that seeks to prioritise the reduction of waste creation, encouraging innovative approaches to waste reutilisation and recycling - throwing away will become a last resort.
- **Target:**
    - 75% of packaging reused or recycled by 2030
    - 70% of all local authority collected waste reused, composted or recycled by 2030
    - 0% of waste sent to landfill by 2030
    - 50% reduction in food waste generated by 2030
- **Strategic Priorities (SP):**
    - **SP1:** Work across government authorities and businesses to strengthen producer responsibility, along with practical, innovative, and effective information and guidance for consumers to reduce waste generated, particularly food.
    - **SP2:** Use education and best practice sharing to drive significant behaviour change within Surrey to encourage the adoption of more sustainable purchasing practices.
    - **SP3:** Where waste is produced, we will work with partners to develop practical, innovative, and effective methods for increasing reuse and recycling rates. We will also evaluate the current carbon impact of recycling collection and disposal practices so that their impact can be lessened e.g., electrification of rubbish collection vehicles.

7. Land Use and Food Systems

- **Ambition Statement:** Develop a land use framework for Surrey focused on increasing accessible green spaces, woodland cover in appropriate locations in line with national targets and sustainable farming practices.
- **Target:**
    - 1.2 million trees planted by 2030
- **Strategic Priorities:**
    - **SP1:** Work with the agricultural industries, partners, and research groups to promote sustainable localised food systems within Surrey.
    - **SP2:** Increase the potential of Surrey's land, biodiversity, current and future woodland to sequester and capture carbon, and help to reduce the impacts of climate change.
    - **SP3:** Greater learning and sharing of approaches to reduce carbon in our food consumption patterns through our procurement practices and within our communities.

8. Industry and Green Economy

- **Ambition Statement:** Pursue the transition to clean growth, through the decarbonisation of all major sectors and investment in the development of clean technologies and industries that create jobs and improve the quality of life for our residents.
- **Target:** 56% emissions reduction across industry by 2035 against BAU as a minimum
- **Strategic Priorities:**
    - **SP1:** Expand research and development activities and the development of relevant skills amongst our workforce to support the creation of green technologies and products to decarbonise our industry.
    - **SP2:** Pursue energy efficiency improvements in local industry and businesses that reduce consumption and decarbonise energy usage.
    - **SP3:** Utilise innovation in digital technology to unlock a green transformation of our economy.

Adaptation

- **SP1:** We will work with partners, employees, and our supply chain to increase the resilience of our estate(s) to climate change impacts, in particular flooding and extreme heat.

- **SP2:** Take a proactive approach to working with planners and developers to strengthen the integration of climate change adaptation and holistic thinking into development proposals to build long-term resilience to climate change.
- **SP3:** Increase understanding amongst staff, residents, and businesses of the potential threats of climate change under different IPCC climate scenarios and how this can be integrated into our activities and estates as preventative measures and through the management of risk.

Surrey's new tree strategy

- As a part of Surrey's ambition to be a carbon neutral county by 2050, SCC Climate Change Strategy sets out a target for the planting of 1.2 million new trees (one for every resident) by 2030. This ambition is not something that the County Council can deliver alone; the New Tree Strategy is for the whole of Surrey, including residents, businesses, the public sector, including the borough and district authorities, with the Country Council taking a coordinating role.
- The vision of the New Tree Strategy is that the right trees are planted in the right place, including both urban and rural locations, and supported to grow to maturity.

3.2.3. SCC Local Transport Plan

Introduction

The SCC Local Transport Plan (LTP3) 2011-2026, updated 2017 is the third Local transport Plan (LTP) for the county. The SCC LTP3 sets out the strategy to help people to meet their transport and travel needs effectively, reliably, safely, and sustainably within Surrey. The LTP comprises strategies, sections on the overarching vision and objectives, transport problems in Surrey, indicators and targets, implementation programmed and the accompanying statutory assessments.

Vision

The LTP3 vision is to: help people to meet their transport and travel needs effectively, reliably, safely and sustainably within Surrey; in order to promote economic vibrancy, protect and enhance the environment and improve the quality of life.

Objectives

- Effective transport: to facilitate end-to-end journeys for residents, businesses, and visitors by maintaining the road network, delivering public transport services and, where appropriate, providing enhancements.
- Reliable transport: to improve the journey time reliability of travel in Surrey.
- Safe transport: to improve road safety and the security of the travelling public in Surrey.
- Sustainable transport: to provide an integrated transport system that protects the environment, keeps people healthy and provides for lower carbon transport choices.

3.3. London Borough of Richmond upon Thames Key Planning Documents

3.3.1. London Borough of Richmond upon Thames (LBRuT) Local Plan (2018)

The Council's Local Plan sets out policies and guidance for the development of the borough, looking ahead to 2033.

Policy LP10: Local Environmental Impacts, Pollution and Land Contamination

The Council will seek to ensure that local environmental impacts of all development proposals do not lead to detrimental effects on the health, safety and the amenity of existing and new users or occupiers of the development site, or the surrounding land. These potential impacts can include, but are not limited to, air pollution, noise and vibration, light pollution, odours and fumes, solar glare and solar dazzle as well as land contamination.

Developers should follow any guidance provided by the Council on local environmental impacts and pollution as well as on noise generating and noise sensitive development. Where necessary, the Council will set planning conditions to reduce local environmental impacts on adjacent land uses to acceptable levels.

Air Quality

The Council promotes good air quality design and new technologies. Developers should secure at least 'Emissions Neutral' development.

Noise and Vibration

The Council encourages good acoustic design to ensure occupiers of new and existing noise sensitive buildings are protected.

Light Pollution

The Council will seek to ensure that artificial lighting in new developments does not lead to unacceptable impacts.

Land Contamination

The Council promotes, where necessary, the remediation of contaminated land where development comes forward. Potential contamination risks will need to be properly considered and adequately mitigated before development proceeds

Construction and Demolition

The Council will seek to manage and limit environmental disturbances during construction and demolition as well as during excavations and construction of basements and subterranean developments. To deliver this the Council requires the submission of Construction Management Statements (CMS) for the following types of developments:

1. All major developments
2. Any basement and subterranean developments
3. Developments of sites in confined locations or near sensitive receptors
4. If substantial demolition/excavation works are proposed

Where applicable and considered necessary, the Council may seek a bespoke charge specific to the proposal to cover the cost of monitoring the CMS.

Policy LP12: Green Infrastructure

Green infrastructure is a network of multi-functional green spaces and green features, which provides multiple benefits for people, nature and the economy.

To ensure all development proposals protect, and where opportunities arise enhance, green infrastructure, the following will be considered when assessing development proposals:

1. The need to protect the integrity of the green spaces and features that are part of the wider green infrastructure network; improvements and enhancements to the green infrastructure network are supported
2. Its contribution to the wider green infrastructure network by delivering landscape enhancement, restoration or re-creation
3. Incorporating green infrastructure features, which make a positive contribution to the wider green infrastructure network

The hierarchy of open spaces, as set out in the table within the local plan, will be protected and used.

Policy LP15: Biodiversity

The Council will protect and enhance the borough's biodiversity, in particular, but not exclusively, the sites designated for their biodiversity and nature conservation value, including the connectivity between habitats. Weighted priority in terms of their importance will be afforded to protected species and priority species and habitats including National Nature Reserves, Sites of Special Scientific Interest (SSSI) and Other Sites of Nature Importance as set out in the Biodiversity Strategy for England, and the London and Richmond upon Thames Biodiversity Action Plans. This will be achieved by:

1. Protecting biodiversity in, and adjacent to, the borough's designated sites for biodiversity and nature conservation importance (including buffer zones), as well as other existing habitats and features of biodiversity value
2. Supporting enhancements to biodiversity

3. Incorporating and creating new habitats or biodiversity features, including trees, into development sites and into the design of buildings themselves where appropriate; major developments are required to deliver net gain for biodiversity, through incorporation of ecological enhancements, wherever possible
4. Ensuring new biodiversity features or habitats connect to the wider ecological and green infrastructure networks and complement surrounding habitats
5. Enhancing wildlife corridors for the movement of species, including river corridors, where opportunities arise
6. Maximising the provision of soft landscaping, including trees, shrubs and other vegetation that support the borough-wide Biodiversity Action Plan

Where development would impact on species or a habitat, especially where identified in the relevant Biodiversity Action Plan at London or local level, or the Biodiversity Strategy for England, the potential harm should:

1. Firstly be avoided (the applicant has to demonstrate that there is no alternative site with less harmful impacts)
2. Secondly be adequately mitigated; or
3. As a last resort, be appropriately compensated for.

Policy LP16: Trees, Woodlands, and Landscape

The Council will require the protection of existing trees and the provision of new trees, shrubs and other vegetation of landscape significance that complement existing, or create new, high quality green areas, which deliver amenity and biodiversity benefits.

Policy LP18: River Corridors

The natural historic and built environment of the River Thames corridor and the various watercourses in the borough, including the River Crane, Beverley Brook, Duke of Northumberland River, Longford River and Whitton Brook, will be protected. Development adjacent to the river corridors will be expected to contribute to improvements and enhancements to the river environment.

Policy LP20: Climate Change Adaptation

The Council will promote and encourage development to be fully resilient to the future impacts of climate change in order to minimise vulnerability of people and property.

New development, in their layout, design, construction, materials, landscaping and operation, should minimise the effects of overheating as well as minimise energy consumption in accordance with the following cooling hierarchy:

1. Minimise internal heat generation through energy efficient design
2. Reduce the amount of heat entering the building in summer through shading, reducing solar reflectance, fenestration, insulation and green roofs and walls
3. Manage the heat within the building through exposed internal thermal mass and high ceilings
4. Passive ventilation
5. Mechanical ventilation
6. Active cooling systems (ensuring they are the lowest carbon options)

Policy LP21: Flood Risk and Sustainable Design

All developments should avoid, or minimise, contributing to all sources of flooding, including fluvial, tidal, surface water, groundwater and flooding from sewers, taking account of climate change and without increasing flood risk elsewhere. Development will be guided to areas of lower risk by applying the 'Sequential Test' as set out in national policy guidance, and where necessary, the 'Exception Test' will be applied.

Unacceptable developments and land uses will be refused in line with national policy and guidance, the Council's Strategic Flood Risk Assessment (SFRA) and as outlined in the table within the policy.

In Flood Zones 2 and 3, all proposals on sites of 10 dwellings or more or 1000sqm of non-residential development or more, or on any other proposal where safe access/egress cannot be achieved, a Flood Emergency Plan must be submitted.

Where a Flood Risk Assessment is required, on-site attenuation to alleviate fluvial and/or surface water flooding over and above the Environment Agency's floodplain compensation is required where feasible.

Policy LP22: Sustainable Design and Construction

Developments will be required to achieve the highest standards of sustainable design and construction to mitigate the likely effects of climate change. Applicants will be required to complete the following:

1. Development of 1 dwelling unit or more, or 100sqm or more of non-residential floor space (including extensions) will be required to complete the Sustainable Construction Checklist SPD. A completed Checklist has to be submitted as part of the planning application.
2. New non-residential buildings over 100sqm will be required to meet BREEAM 'Excellent' standard.

Developers are required to incorporate measures to improve energy conservation and efficiency as well as contributions to renewable and low carbon energy generation. Proposed developments are required to meet the following minimum reductions in carbon dioxide emissions:

1. All non-residential buildings over 100sqm should achieve a 35% reduction. From 2019 all major non-residential buildings should achieve zero carbon standards in line with London Plan policy

Policy LP23: Water Resources and Infrastructure

The borough's water resources and supplies will be protected by resisting development proposals that would pose an unacceptable threat to the borough's rivers, surface water and groundwater quantity and quality. This includes pollution caused by water run-off from developments into nearby waterways.

Policy LP24: Waste Management

The Council will ensure that waste is managed in accordance with the waste hierarchy, which is to reduce, reuse or recycle waste as close as possible to where it is produced.

Policy LP28: Social and Community Infrastructure

The Council will work with service providers and developers to ensure the adequate provision of community services and facilities, especially in areas where there is an identified need or shortage.

New social and community infrastructure

Proposals for new or extensions to existing social and community infrastructure will be supported where:

1. It provides for an identified need;
2. Is of a high quality and inclusive design providing access for all;
3. Where practicable is provided in multi-use, flexible and adaptable buildings or co-located with other social infrastructure uses which increases public access

Policy LP29: Education and Training

The Council will work with partners to encourage the provision of facilities and services for education and training of all age groups to help reduce inequalities and support the local economy.

Policy LP30: Health and Wellbeing

Planning, at all levels, can play a crucial role in creating environments that enhance people's health and wellbeing. The Council promotes and supports healthy and active lifestyles and measures to reduce health inequalities.

The Council will support development that results in a pattern of land uses and facilities that encourage:

1. Sustainable modes of travel such as safe cycling routes, attractive walking routes and easy access to public transport to reduce car dependency.
2. Access to green infrastructure, including river corridors, local open spaces as well as leisure, recreation and play facilities to encourage physical activity.
3. Access to local community facilities, services and shops which encourage opportunities for social interaction and active living, as well as contributing to dementia-friendly environments.
4. Access to local healthy food, for example, allotments and food growing spaces.
5. Access to toilet facilities which are open to all in major developments where appropriate (linked to the Council's Community Toilet Scheme).
6. An inclusive development layout and public realm that considers the needs of all, including the older population and disabled people.
7. Active Design which encourages wellbeing and greater physical movement as part of everyday routines.

Policy LP31: Public Open Space, Play Space, Sports and Recreation

Public Open Space, children's and young people's play facilities as well as formal and informal sports grounds and playing fields will be protected, and where possible enhanced. Improvements of existing facilities and spaces, including their openness and character and their accessibility and linkages, will be encouraged.

New open spaces, play facilities and formal and informal land for sport and recreation should be linked to the wider Green Infrastructure network as they play an important role in creating social cohesion, encouraging and promoting healthier and more active lifestyles.

3.3.2. Ham and Petersham Neighbourhood Plan (2018)

C1 – Protecting Green Character

1. The clear distinction between the built-up areas and green spaces of Ham and Petersham will be retained and, where appropriate, enhanced to ensure that the boundary is well defined, physically and visually.
2. In as much as any works require planning consent, the improvement, extension, or renewal of existing leisure facilities within the green spaces of the neighbourhood area must have particular regard to their semi-rural setting within the open spaces when assessed in relation to the relevant policy in the Richmond Local Plan.
3. In as much as any works require planning consent, the materials and the design of structures in and adjacent to green spaces, including signs, fencing and lighting, must be appropriate to the open 'semi-rural' character.

C2 – Character and Context Appraisals

1. All applications for new buildings must demonstrate how the proposal addresses the key elements of the character of the designated Conservation Area or neighbourhood character area in which the site is located.
2. All new development will be assessed against guidance in the relevant character and context area study or the relevant Conservation Area Appraisal for the purposes of policy LP 3 in the Richmond Local Plan.

C3 – Protecting the character of Built Areas

New developments should where it is both possible and practical for the scheme to retain and add to the neighbourhood's network of paths and through routes and maintain the open and permeable structure of the area. The realignment of paths and through routes will be acceptable where this will result in an improvement in permeability. Gated developments will not be accepted.

F1 – Community Facilities

The extension or relocation of local community facilities will be supported, subject to the services provided being maintained or improved. When there is no longer an identified community need for an existing community use or when it is relocated, primary consideration should be given to using and adapting the vacated premises for other community uses.

G1 – Open Spaces

The value Ham and Petersham's green spaces as shown on Figure 3-1 (Figure 7.1 in Ham & Petersham Neighbourhood Plan) will be conserved and enhanced by their protection from development and its adverse impacts.

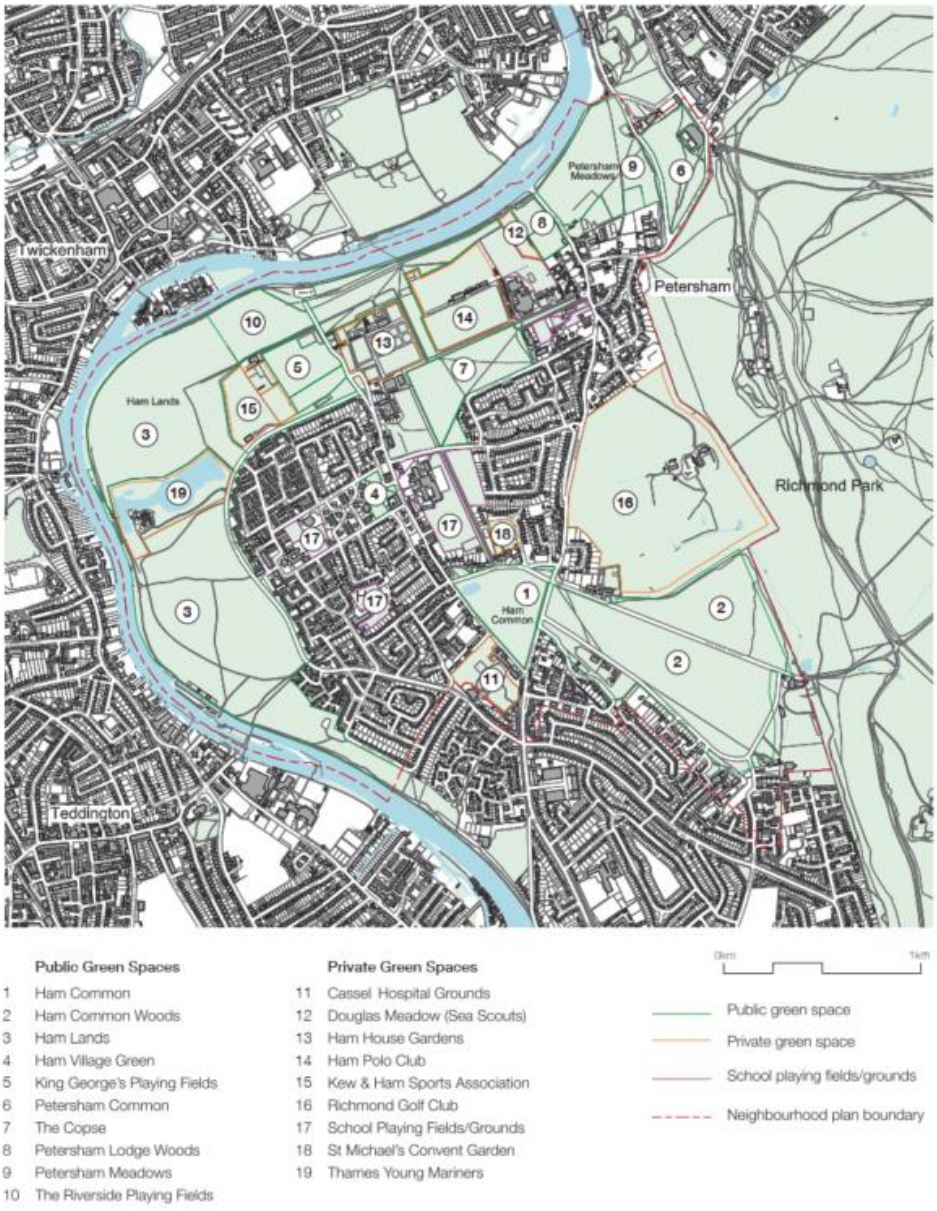

Figure 3-1 - Ham and Petersham green spaces

G2 – Light Pollution

Any proposals on or adjacent to green spaces which include external artificial lighting, or which are likely to result in significant increases in artificial light levels affecting wildlife corridors, will be required to address the following:

1. Light should only be installed where it is needed;
2. Timers should be installed to limit periods of use;
3. Light levels should be limited to the minimum required to enhance visibility;
4. Lights should not be directed upwards;
5. Lights should always be shielded;
6. Light spread should be kept to or below the horizontal;
7. Narrow spectrum bulbs should be used;
8. Light sources emitting ultra-violet light must be avoided;
9. Lighting columns should be as short as practicable.

E1 – Sustainable Development

All new buildings are actively encouraged to achieve accreditation with the Home Quality Mark or Passivhaus standard.

E3 – Water Efficiency

1. All new houses should provide water butts. In developments of blocks of flats facilities for communal water storage and reuse shall be provided.
2. The provision of water butts is also encouraged and supported in commercial developments and extensions to residential properties.

E4 – Sustainable Drainage (SuDS)

All new buildings will be expected to include a sustainable drainage system to dispose of surface water. All sustainable drainage systems must be integrated into the landscape and have a maintenance programme.

3.4. National Building Regulations

Most building work being carried out in England must comply with the Building Regulations 2010. Each approved document contains:

- General guidance on the performance expected of materials and building work to comply with each of the requirements of the Building Regulations, and
- Practical examples and solutions on how to achieve compliance for some of the more common building situations.

Approved Document Part L (2021)

Part L of the Building Regulations related to the conservation of fuel and power, this is the mechanism by which the government is driving reductions in the regulated CO_2 emissions from new buildings. The Building Regulations requirements to be met, relating to Approved Document L Volume 2, 2021 are:

Schedule 1 – Part L Conservation of fuel and power

L1. Reasonable provision shall be made for the conservation of fuel and power in buildings by

a. Limiting heat gains and losses
    i. Through thermal elements and other parts of the building fabric; and
    ii. From pipes, ducts and vessels used for space heating, space cooling and hot water services;
b. Providing fixed building services which
    i. Are energy efficient to a reasonable standard;
    ii. Have effective controls; and
    iii. Are commissioned by testing and adjusting as necessary to ensure they use no more fuel and power than is reasonable in the circumstances

On-site generation of electricity

L2. Where a system for on-site electricity generation is installed

a. Reasonable provision must be made to ensure that
    i. The system and its electrical output are appropriately sized for the site and available infrastructure;
    ii. The system has effective controls; and
b. It must be commissioned by testing and adjusting as necessary to ensure that it produces the maximum electricity that is reasonable in the circumstances

3.5. Key Sustainability Guidance

The London Energy Transformation Initiative (LETI) was established in 2017 to support the transition of the capital's-built environment to net zero carbon, providing guidance that can be applied to the rest of the United Kingdom (UK). As the client is committed to achieving Net Zero for this development, complying with LETI standards and guidance is important.

There are several publications by LETI to put London and the rest of UK on the path to a zero-carbon future. Collectively, guidance from LETI has become rapidly established as industry leading, and accordingly has formed a key reference for this document. The analysis presented below references the following two LETI guidance documents: the LETI Climate Emergency Design Guide and LETI Client Guide.

LETI Climate Emergency Design Guide (2020)

LETI believes that in order to meet climate change targets, all new buildings must operate at net zero carbon by 2030 and all buildings must operate at net zero carbon by 2050. The LETI Climate Emergency Design Guide [17] provides practical solutions to set out a definitive journey into a net zero future. This guidance outlines how we should be designing buildings now. By 2030 these requirements must become standard practice.

LETI Client Guide (2021)

The LETI Client Guide for Net Zero Carbon Buildings pulls together key findings and recommendations from numerous LETI publications, covering the ways in which the processes of briefing, design, procurement, construction, occupation, management and valuing of building development must change to fulfil this Zero Carbon vision. LETI recognise that client bodies and their funders remain at the centre of this process, capable of empowering or preventing this achievement through the wide number of stakeholders they engage with.

3.6. Summary

A review of the vision, policies and objectives set out in the national, regional and local planning documents, highlights the breadth of sustainability concerns, which cover a wide range of focus areas to help drive towards a cleaner, healthier and resilient economy. One common strand that exists across all documents is the need to consider the impacts of new developments on climate and the decarbonisation of society, aligned to the UK's 2050 Net Zero carbon objective. Proposed measures to enable reduction of carbon emissions include reducing operational carbon emissions, embodied carbon in design and adopting circular economy strategies.

The National, County and Borough Council planning documents all detail key environmental considerations including effective use or land, protection of nature and biodiversity, air quality and water resource efficiency. Additionally, there is a strong focus across all documents, increasing from national through to local level, of supporting safe, healthy and empowered communities with a high sense of wellbeing and social cohesion.

National planning documents in particular highlight the role of transportation in reducing UK carbon emissions, which is mirrored to an extent at County level through Surrey County Council's own Local Transport Plan that includes the need for an integrated transport system to enable low carbon transport options. At Borough level the emphasis on transport is around local transport connections and reducing local pollution.

In terms of buildings, at national level the drive is to ensure sufficient levels of housing; at local level there is an emphasis on enhancing the local landscape. At regional level the focus shifts to low carbon and energy efficient development, with renewable energy provision and low water consumption, that enables safe and easy access to existing services and transport hubs.

Overall, whilst there is a variance in emphasis at national, regional and local level, the review of the planning documents in relation to this Project points to the need for a core focus on low carbon design to support the Net Zero agenda. In addition, broader consideration across a range of sustainability focus areas is needed, to include renewable energy and energy conservation in buildings, circular economy, water conservation, biodiversity and protection of local nature and ease of access to local facilities including transport. The Proposed Development must consider the contribution to local communities and wellbeing of residents to ensure a positive overall contribution of the design to the local society. These observations are incorporated in the Sustainability Review Section below. The Sustainability Review will follow the BREEAM assessment framework as it encompasses all the aspects of sustainable design The Proposed Development is required to implement.

In line with the requirements of the London Borough of Richmond upon Thames, a Sustainable Construction Checklist SPD is completed and can be found in Appendix A

4. Sustainable Assessment Method

The design objective for the development is to achieve BREEAM Excellent rating in line with policy. Therefore, the BREEAM New Construction 2018 assessment methodology has been used to formally assess the sustainability credentials of the proposed development.

BREEAM assesses the sustainability rating of new non-residential development against 10 categories of sustainable design including:

- Management
- Health and Wellbeing
- Energy
- Transport
- Water
- Materials
- Waste
- Land Use and Ecology
- Pollution
- Innovation

Each category consists of a number of issues, and each issue seeks to mitigate the impact of a new build element of the building against performance targets and assessment criteria. BREEAM uses a scale of 'Pass', 'Good', 'Very Good', 'Excellent' and 'Outstanding' to assess the overall level of the environmental performance.

BREEAM Level	% Points Required
Outstanding	≥ 85
Excellent	**⩾ 70**
Very Good'	≥ 55
Good	≥ 45
Pass	≥ 30
Unclassified	< 30

At least 70 BREEAM points will need to be achieved through sustainable design to achieve a BREEAM Excellent rating. The BREEAM points will need to be achieved by accomplishing mandatory standards and tradable credits.

Further credits are available on a tradable basis from other categories so that the developer may choose how to add performance credits to achieve the rating for which they are aiming.

The BREEAM pre-assessment appended to this document demonstrates that the development can potentially achieve a BREEAM Excellent rating. It should be noted that this pre-assessment has been undertaken early in the design process and is therefore subject to change. It is also important to note that the threshold for BREEAM Excellent can be achieved by attaining other credits within the BREEAM scheme, and not achieving some of those allocated in the pre-assessment. A copy of the pre-assessment is provided in Appendix B.

5. Sustainability Strategies and Measures

5.1. Management

It is important to set sustainable management objectives at the start of the project, which can be followed through into the operation of the Proposed Development. Therefore, sustainable management practices in connection with design, construction, commissioning, handover and aftercare will be adopted.

5.1.1. Project Brief and Design

Encouraging an integrated design process is valuable. At the start of the project, the main targets such as achieving Net Zero should be outlined and guidance such as the LETI standards should be followed to accomplish the desired design and operation. The early establishment of these targets can minimise the changes required in the design later down the line.

5.1.2. Life Cycle Costing

As an initial step, building performance targets are optimised within realistic confines of budget and achievability. Then, life cycle cost and service life planning are taken into account through enhanced understanding of capital cost; appropriate improvements are made to design, specification, maintenance and operation by encouraging the use of life cycle costing.

5.1.3. Responsible Construction Practices

Responsible construction practices will be achieved through environmentally and socially considerate site management with constant attention to making continuous improvements, i.e., reducing utility consumption where possible.

5.1.4. Commissioning and Handover

Commissioning and handover stages will be carried out carefully to ensure building services and fabric defects are identified and rectified, and that the building serves the purpose it was intended for.

5.2. Health and Wellbeing

The Proposed Development aims to improve the health and wellbeing of occupants, focusing on aspects such as indoor air quality and natural light. A strong place-making approach has been considered to inform the overall sitewide design approach, linked to mobility, green infrastructure and water resources, seeking to optimise holistic sustainability benefits.

5.2.1. Indoor Air Quality

A focus for the design team has been selection of low VOC, low formaldehyde, and asbestos free materials. All the product types for the Project listed in tables below should meet the limits as specified. Table 5-1 sets out recommended air quality concentration limit levels for formaldehyde, total VOCs (TVOCs) and key carcinogens for key building product types. Table 5-2 sets out maximum TVOCs content for paints and coatings. The information in both these tables has been drawn from guidance provided by the UK Building Research Establishment (BRE).

Table 5-1 - Indoor air quality limit levels by key pollutant and product type

Product type / Formaldehyde	Total Volatile Organic Compounds (TVOCs)	Category 1A and 1B Carcinogens	Testing Requirements
Interior paints and coatings			
≤ 0.06 mg/m³	≤ 1.0 mg/m³	≤ 0.001 mg/m³	EN 16402 or ISO16000-9 or EN 16516 or CDPH Standard Method v1.1
Wood-based products (including wood flooring)			
≤ 0.06 mg/m³ (non MDF) ≤ 0.08 mg/m³ (MDF)	≤ 1.0 mg/m³	≤ 0.001 mg/m³	ISO16000-9 or EN 16516 or CDPH Standard Method v1.1 or EN 717-1 (Formaldehyde emissions only)
Flooring materials(including floor levelling compounds and resin flooring)			
≤ 0.06 mg/m³	≤ 1.0 mg/m³	≤ 0.001 mg/m³	ISO10580 or ISO16000-9 or EN 16516 or CDPH Standard Method v1.1
Ceiling, wall, and acoustic and thermal insulation materials			
≤ 0.06 mg/m³	≤ 1.0 mg/m³	≤ 0.001 mg/m³	ISO16000-9 or EN 16516 or CDPH Standard Method v1.1
Interior adhesives and sealants (including flooring adhesives)			
≤ 0.06 mg/m³	≤ 1.0 mg/m³	≤ 0.001 mg/m³	EN 13999 (Parts 1-4) or ISO16000-9 or EN 16516 or CDPH Standard Method v1.1

Source: BRE BREEAM UK New Construction (2018)

Table 5-2 - Maximum TVOC content for paints and coatings

Product Category	Free TVOC content of ready-to-use product g/l	Testing Requirements
Interior matte walls and ceilings (gloss < 25@60°)	10	ISO11890-2 or ISO17895 or Calculation based on the ingredients and raw materials
Interior glossy walls and ceilings (gloss > 25@60°)	40	
Interior trim and cladding paints for wood and metal	90	
Interior trim varnishes and wood stains, including opaque wood stains	65	

Interior minimal build wood stains	50
Primers	15
Binding primers	15
One-pack performance coatings	100
Two-pack reactive performance coatings for specific end use such as floors	80
Multi-coloured coatings	80
Decorative effect coatings	80

Source: BRE BREEAM UK New Construction (2018)

A Mechanical Ventilation Heat Recovery (MVHR) system aligned with LETI guidance will be fitted. The end user will be able to trigger its boost function through the BEMS, which will monitor the MVHR's filters prompting the user to replace them.

5.2.2. Thermal Comfort

A key aspect of health and wellbeing within buildings is thermal comfort. This is addressed through an overheating assessment. The proposed development has been modelled three dimensionally in Integrated Environment Solutions (IES) VE software to perform building and site-specific overheating assessments. The models are based on architectural floor plans and proposed site layouts. Fabric values specified in the model are based on the figures in Table 5-3.

In accordance with the cooling hierarchy, the following measures have been incorporated to the design.

Minimising internal heat generation through energy efficient design

Internal heat generation is minimised by a combination of measures including the following:

- Minimising thermal bridging;
- Minimising heat loss from heating and hot water systems;
- No separate primary domestic hot water pipework distribution;
- No boilers in apartments;
- Low temperature hot water distribution;
- Low energy lighting.

Reducing the amount of heat entering the building in summer

The heat entering the building is reduced by a combination of measures including the following:

- Low glazing g-value;
- Improved fabric thermal conductivity;
- External shading through inset balconies and reveal.

Use of thermal mass and high ceilings to manage the heat within the building

The floor-to-floor height have been maximised within the design constraints of the development.

Passive ventilation

Most spaces will utilise openable windows, with some restrictions, to allow for cooling during the summer months.

Mechanical ventilation

Spaces are provided with mechanical ventilation with heat recovery to allow for background ventilation to be provided effectively throughout the year and minimise heating demand.

Summary

Despite the implementation of these measures, some spaces have a large amount of glazing, resulting in higher solar gains. The spaces which overheat will require active cooling. Details on this can be found in PR200-ATK-XX-RP-V-Overheating-00000.

5.2.3. Daylighting

Access to natural daylight is another key aspect of health and wellbeing for building residents. This is addressed by a building and site-specific assessment using modelling software. A daylighting assessment was conducted to analyse the amount and quality of daylight available to the applicable zones within the apartments and townhouses in the Proposed Development

While there are no specific planning application obligations or policy requirements, the development is designed to achieve Average Daylight Factor (ADF) and No-Sky line performance criteria described in the best practice guidance provided in BRE 209. The calculations have been carried out using Flucs DL and Radiance IES modules of the Integrated Environment Solutions (IES) software.

The daylight modelling has been carried out for bedrooms and communal areas. The results indicate that all the tested rooms comply with BRE's guidance. In addition, the analysis of the Sky View also indicates that at least 80% of the floor area of all tested habitable rooms have a view of the sky, thus complying with BRE's guidance.

5.2.4. Acoustics

Meeting the acoustics requirements enables the occupants to experience best practice acoustic performance levels appropriate to the functional activities in occupied spaces.

The external noise levels are within the WHO recommendations. Assuming that a façade with partially open windows provides a reduction of 15dB to the incident $L_{Aeq,T}$, the resultant internal noise levels would also be consistent with the WHO recommendations.

5.2.5. Social Value

The Proposed Development poses an improvement on the existing Thames Young Mariners (TYM) site, bringing the facilities up to current health and safety standards with modern, fit for purpose facilities which will allow SOLD to increase its service capacity, strengthening its commercial operation for Surrey County Council.

The development of this site will directly contribute to priorities around a number of social value agendas including:

- Tackling health inequality
- Empowering communities to take positive social action
- Improving the lives and opportunities of the most vulnerable children, young people and families
- Environmental sustainability
- Inclusivity

The evidence supporting the outcomes of outdoor learning is extensive and compelling, and specifically linked to improved physical health and wellbeing, academic attainment, awareness and respect for the natural environment, engaging disaffected learners and increased opportunities for the most vulnerable in society.

5.2.6. Security

The Proposed Development is designed to consider the security needs of the occupants, allowing for a comfortable, safe, and enjoyable learning environment.

5.3. Energy

Operational carbon, in relation to buildings, refers to the carbon dioxide and other greenhouse gases which are emitted, directly or indirectly, as a result of a building's energy use. This typically includes emissions associated with heating, hot water, ventilation, and lighting systems, as well as energy used for cooking and by specialist equipment such as lifts. As indicated in LETI guidance, operational carbon represents between 40% - 65% of a building's whole life carbon[1]. Energy consumption in the project will be reduced as far as feasible through suitable passive and active design.

[1] Whole life carbon is formed of two key components: a) operational carbon – carbon emissions, both direct and indirect, as a result of operation of the development, including buildings, utilities, transport and land management; b) embodied carbon

'Passive design' is design that considers building features such as orientation, thermal mass, insulation and glazing to take advantage of natural sources of heating and cooling whilst minimising unwanted heat gain and loss. 'Active design' is a structure or a system that either uses or is able to produce electricity itself. The energy demand of the building is first driven down through passive measures and the remaining requirements for comfort are then met through active design means. The project Sustainability Team reviewed the performance of the proposed passive and active design measures against the LETI guidance standards. The results are summarised in the sections below.

5.3.1. Passive Design

The TYM buildings will seek to minimise heat loss and maximise airtightness through a combination of measures, including high performance insulation, high performance windows and high-quality interfaces between building elements. This means that the buildings will need less energy to heat and cool them, resulting in lower carbon emissions.

Table 5-3 below shows the proposed fabric specification for the Proposed Development.

Table 5-3 - Proposed fabric specification

Element	U-values (W/m^2K)	
	Part L1A 2013 minimum fabric requirements	Proposed specification for the development
External walls	0.26	0.13
Roof (flat)	0.18	0.1
Roof (pitched)	0.16	0.1
Ground floor	0.18	0.08
Windows [1]	1.60	1.0-1.2
Rooflights	2.20	1.20
External doors	1.60	1.00
Vehicle access door	1.30	
Airtightness	8 ($m^3/(hm^2)$ at 50Pa)	1 ($m^3/(hm^2)$ at 50Pa)

[1] Solar control glass with a g-value proposed to be 0.4. Glazing performance will need to be reviewed alongside acoustic performance as the design is developed.

5.3.2. Active Design

Natural gas has been excluded from the design of the Project building. All heating and cooking will be via electric equipment. The reason for this is that the carbon intensity of electricity supplied from the grid is significantly lower than that of natural gas. The Project active design approach includes design of energy efficient building services systems. The proposed energy strategy for the development will follow the London Plan 2021 Energy Hierarchy approach of Be Lean, Be Clean and Be Green to enable the maximum viable reductions in regulated and total CO2 emissions over the baseline.

- be lean: use less energy and manage demand during operation through fabric and servicing improvements and the incorporation of flexibility measures
- be clean: exploit local energy resources (such as secondary heat) and supply energy efficiently and cleanly by connecting to district heating networks
- be green: maximise opportunities for renewable energy by producing, storing and using renewable energy on-site

The energy assessment shows that the proposed energy strategy may result in circa 33.9 tCO_2 reduction of regulated CO_2 emissions per annum which equates to circa 150% reduction over the regulated Part L 2021 carbon baseline for the entire development.

– carbon emissions arising from the sourcing and production of materials/equipment, their transport and installation on site as well as their disposal at end of life.

Table 5-4 - Total part L 2021 (SAP 10.2) CO_2 emissions

	CO_2 emissions (tonnes/year)		
	Regulated	**Unregulated**	**Total**
Total Part L 2021Baseline	23.3	12.4	35.7
Proposed energy strategy	-6.2	12.4	6.2

The Part L 2021 carbon assessment results have been converted using the new SAP 10.2 carbon emission factors to predict the total CO_2 emissions over the baseline. The regulated, unregulated and total emissions are summarised in Table 5-4.

In summary, the energy assessment shows the proposed energy strategy for the development:

- Complies with Part L 2021 Building Regulations
- Exceeds regulated operational Net Zero target against Part L 2021 and Part L (SAP10.2) baselines
- Exceeds regulated and unregulated operational Net Zero target against Part L 2021 and Part L (SAP10.2) baselines

Lighting system

LED luminaires will be used throughout the project to maximise energy efficiency whilst keeping maintenance low. The end user shall be able to control the lighting (i.e. on/off and dimming) via the project Building Energy Management System (BEMS) which will comprise a combination of controllers such as wall switches and smart devices (smart phones, tablets, etc) allowing local or remote control. The end user will be able to create and call new scenes post project completion. The scene settings will be stored in the BEMS controllers and will be available only from smart devices. The use of high level/column mounted luminaires will be avoided to prevent light pollution to the surrounding area.

Space heating system

Space heating will be provided to the development via highly efficient Air Source Heat Pump (ASHP) systems. Electric heat pumps are the preferred solution as they have a significantly lower carbon footprint than gas boilers. The heating system will be centralised, whereby all heat pump units are located in a dedicated enclosure remote from the buildings they are serving. The centralised ASHP system will be connected to each building via underground distribution network. Underfloor heating will be provided for the internal areas to provide general space heating. Underfloor heating operates at a low temperature, maximising ASHP efficiency.

Domestic hot water

The domestic hot water will be provided to all hot water outlets within the TYM development via a dedicated solar thermal system and ASHP system comprising of integral hot water storage, circulation pumps and external condensers for additional loads where required.

Ventilation system

All sanitary facilities, changing rooms and drying areas will be provided with Mechanical Ventilation with Heat Recovery (MVHR). This system provides fresh filtered air into a building whilst retaining most of the energy that has already been used in heating the building

It is proposed that the majority of the spaces will be naturally ventilated via openable windows and or ventilation stacks. Where room cooling loads and ventilation requirements dictate, natural ventilation will be used in lieu of mechanical forms of ventilation.

Controls

A Building Energy Management System (BEMS) will be provided for automatic control and monitoring of the building services installations and feedback of plant status/performance for analysis. The BEMS will use direct digital controllers and provides all control functions for the operation of all plant including time scheduling, temperature control, frost protection and energy monitoring.

The local user interface to the BEMS system will be via networkable touch screen keypad and display panel to allow ease of maintenance and will be mounted on the BEMS control panel. The system design will incorporate

current real-time status of every monitored point and every command output including all hard-wired physical points and all open protocol points associated with BEMS interface. The control system will provide run status, condition defect and fault indication as a minimum signal to the BEMS.

Low carbon and renewable energy generation

Generating electricity using renewable energy technology such as solar photovoltaic (PV) panels can help further reduce carbon emissions and in achieving operational Net Zero. The roof space of the Project buildings is proposed as a suitable location for PV panels. The design will seek to maximise the energy generation that can be achieved from these.

5.4. Water

Water for use in appliances, white goods and for washing has a cost and carbon implication for the building users, as well as wider implications for use of an increasingly scarce resource. There are various strategies that can lead to an efficient water design. The following strategies will be considered in the Project to control water consumption and monitor it regularly:

- Low flow sanitary fittings to reduce consumption
- Dual flush toilets
- Leak detection systems
- Metering and submetering for water consumption monitoring

5.5. Materials

5.5.1. Embodied Carbon

According to LETI, buildings currently account for 49% of total greenhouse gas emissions in the UK. Of this total, around 80% is associated with ongoing operational carbon emissions relating to the existing building stock and the remaining 20% is related to the embodied impact of new construction. However, as operational emissions are expected to substantially reduce over the coming years, there will be increasing focus on also reducing embodied carbon. Robust strategies are thus needed, for new development, to reduce embodied carbon.

Embodied carbon emissions arise from producing, procuring, and installing the materials and components that make up a development. These emissions also include the lifetime emissions from maintenance, repair, replacement, demolition, and disposal. Following the LETI guidance, our design approach has considered the following six key aims in relation to reducing embodied carbon:

- **Build less:** Refurb and re-use
- **Build light:** Consider the building structure
- **Build wise:** Longevity and local context
- **Build low carbon:** Review material specifications
- **Build for the future:** Assess end of life and adaptability
- **Build collaboratively:** Involve the whole team

All timber and timber-based based products used on the project will be legally harvested and traded timber. Preference will be given to the use of local materials and suppliers where feasible to reduce the transport distances and to support the local economy.

5.6. Transport

The site location affords accessibility to facilities and amenities within walking distance. Ham Playing Fields and Riverside Drive playground are a 10 min walk away, within the Ham Lands. There are other sports clubs such as the Ham & Petersham Tennis Club, Richmond & Kew Football Club, Ham Polo Club and the Ham & Petersham Rifle & Pistol Club all within 1km of the site.

The nearest bus stops are approximately 800m from the site. These stops serve service 371, which frequently runs between Kingston Upon Thames and North Sheen, 24 hours a day, 7 days a week.

Figure 5-1 - Bus stop locations

The car parking provision comprises 20 parking spaces. Figure 5-2 below shows the access strategy developed for the Proposed Development. Electric charging points shall be provided within the car park area to allow for charging of electric vehicles. There will also be charging points for charging of electric powered water vehicles to suit the specific operational requirements of the site's facilities.

It is proposed to provide a total of 20 cycle spaces outside one of the proposed accommodation blocks, accessible from the access road.

Support and provision for low / zero carbon motorised mobility, e.g. e-mobility hub, public / shared transport services, and linkages to off-site facilities, should be explored. Other considerations include carbon benefits, impacts from air, noise, water and reduction in light pollution.

Figure 5-2 - Site access strategy

Further information on transport can be found in PR-200-PEV-XX-XX-RP-D-00003-Transport Statement.

5.7. Waste

The UK Waste and Resources Action Programme (WRAP) defines the term 'circular economy' as follows: "A circular economy is an alternative to a traditional linear economy (make, use, dispose) in which we keep resources in use for as long as possible, extract the maximum value from them whilst in use, then recover and regenerate products and materials at the end of each service life." To achieve a circular economy, it is essential to select materials/equipment with high recycled content, ease of end-of-life reuse and recyclability.

In addition to helping to keep resources in use for longer, the recycled content of materials/equipment also contributes to embodied carbon reduction. Waste generation, both during construction and end-of-life, is closely linked with material/equipment use, in that if the quantities of materials/equipment are reduced, so waste from both construction and at the end of the asset's lifecycle may also expected to be reduced. Selecting materials/equipment based on ease of reuse and recyclability may also be expected to reduce overall waste generation.

The waste hierarchy and the circular economy aim to reduce the quantity of waste generated while trying to maximise the efficient use of material resources, in particular diversion of solid waste from landfill. To promote the waste hierarchy and circular economy principles in the operational stage of the project, refuse storage facilities will be provided in a convenient location onsite, as shown in Figure 5-3, with clear signage to encourage separation of solid waste for recycling into dry recyclables, food waste and other organic waste, and residual waste, i.e. non-recyclable waste. These storage facilities will also have convenient access from Riverside Drive for refuse collection coordinated with the public realm design and refuse vehicle will stop at site entrance.

Figure 5-3 - TYM waste management facilities

This provision of segregated recyclable waste storage areas will contribute towards local targets for reduction waste volumes sent to landfill (refer to Table 5-5). Waste will be segregated at source into multiple waste streams including dry recycles (glass, metal, paper, cardboard, plastic), food and other organic waste, and residuals. Waste will be collected in colour coded bags and bins to reduce the risk of contamination.

Table 5-5 - SCC waste management targets

Waste Stream	Recycling targets %			
	2020	2025	2030	2035
Local Authority Collected Waste	60%	65%	70%	75%
Construction, Demolition and Excavation Waste	65%	70%	75%	80%
Local Authority Collected Food Waste	-15%	-30%	-50%	-60%
Disposal of Waste to Landfill Targets X	2%	1%	1%	1%

During the demolition process, contractors will segregate different waste streams into spoil heaps on site and remove from the site in segregated loads following all relevant waste regulations. Excavation arisings will be collected into spoil heaps that separate sub-soil and topsoil for later reuse on site. If there is excess material, this will be transported to an alternative site or waste handler. All spoil heaps (demolition and excavation activities) shall be contained within the site compound within the contractor's designated area on site.
Concrete will be supplied to the site ready mixed.

All road gulleys will be protected and no site waste water to enter the public drainage systems.

A Site Waste Management Plan (SWMP) will be developed for the site at the commencement of construction phase, which outlines the key objectives to achieve efficient use of material resources and to reduce the

amount of waste produced due to the construction activities of the site. It will be based on the guiding principles of Surrey Waste Plan (SWP), i.e. sustainable resource and waste management based on the waste hierarchy and the circular economy principles. In accordance with these principles, and in response to the relevant regulatory, policy and guidance context, the SWMP will set out several strategies to reuse, recycle or recover 90% of construction and demolition waste.

5.8. Land Use and Ecology

Design of Project landscaping is aimed at maintaining and enhancing biodiversity and overall ecology on the site, linking to the surrounding environment and aiming to create optimal multi-function, multi-benefit green infrastructure. In line with Ham and Petersham Neighbourhood Plan and the LBRuT Biodiversity Action Plan, the Proposed Development will aim to target the primary aim of the Action Plan, which is ‘‘to conserve and enhance the variety of habitats and species in the London Borough of Richmond upon Thames, in particular those which are of international or national importance, are in decline locally, are characteristic to the borough and/or have particular public appeal, which can raise the profile of biodiversity”. Therefore, the design has been formulated to protect, conserve, and enhance the natural assets of the site to achieve a Biodiversity Net Gain.

On 2nd March 2022, Middlemarch Environmental Ltd undertook an Ecological Walkover Assessment to assess baseline habitat conditions within the Thames Young Mariners site to inform a Biodiversity Net Gain Assessment associated with the proposed redevelopment of the site.

The existing value of the habitats within the Redline Application Boundary is 32.70 Biodiversity Units (BU) and 0.23 Hedgerow Units. Proposals have been designed to retain and protect notable habitats on site, in accordance with the Ecological Mitigation Hierarchy. Small scale losses of “Low Distinctiveness “and “Poor” condition habitats, amenity grassland and introduced shrub, are required to facilitate the development. The addition of pontoons within the lake is not projected to significantly alter the condition of the habitat with respect to the Defra 3.1 condition assessment criteria.

As compensation for the habitat loss, the following outline enhancements have been proposed:

- Enhancement of 0.30ha of amenity grassland adjacent to the southern site boundary as species enrich other neutral grassland, targeting “Good” condition;

- Enhancement of woodland parcels BW1 and BW2 from “Poor” to “Moderate” condition;
- Planting of 10 no. native scattered trees in the “Medium” size category targeting “Moderate” condition; and,
- Planting of a native species rich hedgerow along the southern site boundary adjacent to Ham Lands, targeting “Good” condition. The above outline enhancements have been targeted to improve habitat continuity between the Thames Young Mariners site and adjacent Ham Lands SINC.

As per the Biodiversity Net Gain Assessment undertaken by Middlemarch Environmental Ltd., the proposals (habitat loss, creation and enhancement), will deliver a net gain of +**4.17 Habitat BU**, a **+16.37%** increase relative to baseline habitat value. Additionally, the proposals (habitat loss and retention), will deliver a net gain of +**1.02 Hedgerow BU**, a **>100%** increase in the baseline hedgerow value.

The projected onsite habitat values given are based on the assumption that an appropriate management plan will be implemented to ensure that the habitats will be established and maintained to fulfil their intended biodiversity value. Biodiversity Net Gain Principles necessitates that any biodiversity units claimed must be deliverable over a minimum period of 30 years. As such, the Management Plan must provide long-term management proposals and provide scope for monitoring and reporting to demonstrate that the intended values are achieved over the 30-year period. A recommendation to this effect is included below.

5.9. Pollution

5.9.1. Flood and Surface Water Management

In accordance with the National SuDs Standards, surface runoff not collected for use will be discharged according to the following discharge hierarchy:

1. Store rainwater for later use;
2. Use infiltration techniques in suitable areas;
3. Provide attenuation with discharge to a watercourse;
4. Provide attenuation with discharge to a surface water sewer (drain);
5. Provide attenuation with discharge to the combined sewer (drain)

Due to the Project’s location in Environment Agency Flood Zone 1 (Low Probability), overall flood risk at the site is currently low. However, the same report identifies the site is at high risk from surface water flooding based on information from the long-term flood risk map for the area. Sustainable Drainage System (SuDS) measures are considered in the project’s design.

From the Floor Risk Assessment conducted by Soils Ltd., it is concluded that Most of the new development, including the more vulnerable guest/staff accommodation buildings were to be emplaced within Flood Zone 1, with a low probability of flooding from fluvial and tidal sources. The risk from surface water flooding was very low risk and negligible to low risk from both groundwater and sewer flooding. The site was in an area where flooding could occur due to reservoir failure, when there is also flooding from rivers. The reservoir breach models are based on a worst-case scenario and the probability of failure occurring was considered low.

However, the northwest side of the main building would be in Flood Zone 2 and the peripheral of the building within Flood Zone 3, corresponding to a medium and high probability of flooding. The JBA flood maps model for a 1000-year return showed a flood depth of 0.1 to 0.3m covering the corner of the proposed main building.

The site was accessed via a roadway that runs along the southern side of the lake connecting to Riverside Drive in the northeast corner of The Site. A section of the access road was within Flood Zone 2, with the remaining roadway within Flood Zone 1.

For residual risk of flooding the EA’s maximum likely water level for 2100 was considered. Existing flood defences were located around the southern side of the lake. The lowest part of the defences was located off the northwest corner of the main building and would be breached by the estimated maximum likely water level for 2100. The extent of the tidal breach inundation (Figure 3) covers the entirety of the main building and the very northwest corner of the westernmost guest accommodation building. All remaining buildings were outside the tidal breach inundation zone.

There was a low to negligible risk of flooding based on historical events.

The effects of climate change must be considered in the design of the flood risk mitigation and drainage schemes for the proposed development.

Due to the variability in ground conditions the development will likely have to adopt a combined system of attenuation and infiltration SuDS.

The new development was considered to have a very low to negligible impact on off-site infrastructure.

5.9.2. Noise

An Environmental Noise Impact Assessment has been undertaken by Acoustic Design Technology Ltd. to determine the existing ambient noise levels in the vicinity of the site and to obtain representative samples of the existing activities on site.

Planning permission is being sought for redevelopment of the Thames Young Mariners site. It is proposed that a new main building is erected with a rooftop plant area comprising two air source heat pumps. Also in the proposal are a number of guest residential blocks, a camping changing block and two new aerial rope courses to be constructed in the place of the existing climbing wall.

An assessment of the potential noise breakout from the new activities was undertaken. Predicted noise levels at the nearby houses were found to be well below the noise levels recommended in WHO for indoor areas and outdoor amenity areas. Also, when viewed in the context of the surrounding area, the noise generated was found to be low in level and not out of character, given the party boat businesses operating in the area and the close vicinity of the site to several sports pitches and a gun range.

Fixed plant installations have not been finalised at this stage, so BS 4142:2014 rating levels are proposed, on a par with the otherwise prevailing background noise levels designed to result in a ‘low impact’ on the closest noise sensitive properties as defined in the standard.

5.9.3. Light Pollution

High efficiency internal and external lighting will be used throughout the development in conjunction with a lighting control system incorporating daylight and presence detection as appropriate. This will ensure that lights are switched off when not required to minimise light pollution.

5.9.4. Local Air Quality

The Proposed Development will not produce local CO_2 or NOx emissions as the development does not make use of any fossil fuel producing systems and is fully electric, meaning it will not have a negative impact on the local air quality.

As outlined in Section 5.6 Transport, The site is situated in close proximity to existing public transport links, encouraging travel via public transport. There is a provision for cycle storage and EV charging points to encourage emission-free access to the site, improving the local air quality.

Additionally, during the construction process, best practice construction methods will be encouraged. Where all vehicle engines will be switched off when on stand, efficient plants will be utilised and dust control will be implemented to minimise the impact on local air quality.

6. Summary

The sustainability approach has been developed to meet the targets and standards set by the relevant planning policies. The proposed development has incorporated a number of key sustainability measures and features which are summarised in

Table 6-1 - Key measures taken to meet BREEAM sustainability criteria

Sustainability Opportunity	Measures Taken
Management	Sustainable management practices in connection with design, construction, commissioning, handover and aftercare will be adopted. • **Project Brief** will establish project targets such as Net Zero at an early Stage • **Life Cycle Costing** will be taken into account for a realistic budget • **Responsible Construction Practices** will be adopted by making continuous improvements (i.e., reducing utility consumption) • **Commissioning and Handover** will be carried out carefully to identify and rectify any defects that could affect operation
Health and Wellbeing	• Low VOC, low formaldehyde, and asbestos free materials will be used and MVHR systems will be implemented for good **Indoor Air Quality** • **Thermal Comfort** will be achieved by implementing the cooling hierarchy, and where cooling is required, it will be provided • **Daylighting** assessments show that the assessed rooms pass the BR 209 Average Daylight Factor and No-Skyline criteria. The analysis of the Sky View also indicates that at least 80% of the floor area of all tested habitable rooms have a view of the sky, thus complying with BRE's guidance. • Internal noise levels meet the WHO recommendations, showing good indoor **Acoustics** levels • The development will enhance the local **Social Value** by tackling health inequality, empowering communities, improving the lives of residents, encouraging environmental sustainability and inclusivity • A **Secure** environment will be provided for the building/facility users
Energy	• **Passive** (fabric) **and Active** (lighting, space heating, water heating, ventilation, energy generation, controls) measures have been implemented to minimise the operational carbon of the development

Water	• **Water** for appliance use has been minimised through the use of low flow fittings, leak detection systems and metering
Materials	• **Embodied Carbon** emissions will be minimised by following the six key aims of the LETI guidance and sourcing all timber-based products from credible sources
Transport	• **Transport** to the site is available with local bus routes, cycling and driving. There is provision for parking and cycle storage
Waste	• SCC **Waste** management targets will be met, and the waste hierarchy and circular economy principles will be followed. Refuse storage will be provided and easily accessible for collection. Demolition processes will segregate different waste streams and remove them from site following all relevant regulations. Concrete will be supplied pre-mixed.
Land Use and Ecology	• **Land Use and Ecology** provisions ensure that there's a net gain in biodiversity for the developed area and all risks and opportunities are taken into account
Pollution	• **Flood Risk** is deemed to be low to negligible based on historical events. Due to the variability in ground conditions, the development will likely adopt a combined attenuation and infiltrations SuDS system • The predicted **Noise** levels at nearby houses were found to be well below the noise levels recommended in WHO for indoor and outdoor amenity areas • **Light Pollution** will be minimised by switching off unrequired lighting • **Local Air Quality** will not be negatively impacted as the development is fully electric in operation. Furthermore, the presence of EV charging points and cycle storage encourages emission-free transport to the site

This Sustainability Statement demonstrates that the proposed development is targeting good standards of design and build-quality. Much attention has been given to reducing the environmental impact throughout the lifetime of the development and not just during occupation.

The BREEAM pre-assessment demonstrates that the development can potentially achieve a BREEAM Excellent rating. It should be noted that this pre-assessment has been undertaken early in the design process and is therefore subject to change. It is also important to note that the threshold for BREEAM Excellent can be achieved by attaining other credits within the BREEAM scheme, and not achieving some of those allocated in the pre-assessment.

In conclusion, this report demonstrates that the proposed development can meet the sustainability planning policy requirements. The design team has carefully considered the site's potential environmental impacts, which will be managed and mitigated in line with the relevant planning policies.

7. Appendix A – Sustainable Construction Checklist

LBRUT Sustainable Construction Checklist - June 2020

This document forms part of the Sustainable Construction Checklist SPD. This document **must** be filled out as part of the planning application for the following developments: all residential development providing **one or more new residential units (including conversions leading to one or more new units)**, and all other forms of development providing **100sqm or more of non-residential floor space**. Developments including new non-residential development of less than 100sqm floor space, extensions less than 100sqm, and other conversions are strongly encouraged to comply with this checklist. Where further information is requested, please either fill in the relevant section, or refer to the document where this information may be found in detail, e.g. Flood Risk Assessment or similar. **Further guidance** on completing the Checklist may be found in the Justification and Guidance section of this SPD.

Property Name (if relevant):	Thames Young Mariners	Application No. (if known):	
Address (include. postcode)	Thamjes Young Mariners, Riverside Drive, Richmond, TW10 7RX		
Completed by:			
For Non-Residential Size of development (m2)	Site Area: 37,627sqm , Building footprint: 1974sqm	*For Residential* Number of dwellings	

1 MINIMUM COMPLIANCE (RESIDENTIAL AND NON-RESIDENTIAL)

Energy Assessment

Has an energy assessment been submitted that demonstrates the expected energy and carbon dioxide emissions saving from energy efficiency and renewable energy measures, including the feasibility of CHP/CCHP and community heating systems? If yes, please select TRUE.	TRUE

Carbon Dioxide emissions reduction

What is the on site carbon dioxide emissions reduction against a Building Regulations Part L (2013) baseline *Policy LP 22 B. and Draft London Plan Policy 9.2.5 require a 35% onsite reduction in CO_2 emissions beyond Building Regulations 2013.*	127 %
What is the percentage reduction from efficiency measures alone *Policy LP 22 C. and Draft London Plan Policy 9.2.6 require a 10% onsite reduction in CO2 emissions beyond Building Regulations 2013 from efficiency measures for residential and 15% for non-residential.*	36 %
Percentage of **total** site CO2 emissions saved through renewable energy installation?	91 %
What is the total remaining carbon to be offset *Policy LP 22 B. and Draft London Plan Policy 9.2.4 require Major developments to achieve Zero Carbon after offsetting.*	0 Tonne
Are remaining emissions going to be offset through offset fund payment in accordance with current guidelines issued for the cost per tonne of CO2?	FALSE
What is the total predicted cost of offset? *The London Plan sets this as £95/tonne per year over 30 years, this should be updated based on As Build calculations.*	0 £

1A MINIMUM POLICY COMPLIANCE (NON-RESIDENTIAL AND DOMESTIC REFURBISHMENT)

Please check the Guidance Section of this SPD for the policy requirements

Environmental Rating of development:

Non-Residential new-build (100sqm or more)			
BREEAM Level	Excellent	Have you attached a pre-assessment to support this?	TRUE
Excellent required under Policy LP22 A 3			
Extensions and conversions for residential dwellings			
BREEAM Domestic Refurbishment	Please Select	Have you attached a pre-assessment to support this?	Please Select:
Excellent required under Policy LP22 A 4			
Extensions and conversions for non-residential buildings			
BREEAM Level	Please Select	Have you attached a pre-assessment to support this?	Please Select:
Excellent required under Policy LP 22			

Score awarded for Environmental Rating: **Subtotal** 8

BREEAM: Good = *0*, Very Good = 4, Excellent = *8*, Outstanding = *16*

1B MINIMUM POLICY COMPLIANCE (RESIDENTIAL)

Water Usage

	Score	
Internal water usage after gray/rainwater systems limited to 105 litres person per day. (Excluding an allowance 5 litres per person per day for external water consumption). Calculations using the water efficiency calculator for new dwellings have been submitted.	*1*	Please Select:
110l/p/d Required for new dwellings under Policy LP22 A 2 105l/p/d required under Draft London Plan Policy SI5		

Subtotal 0

2. ENERGY USE AND POLLUTION

2.1 Need for Cooling

		Score	
a.	How does the development incorporate cooling measures? Tick all that apply:		
	Energy efficient design incorporating specific heat demand to less than or equal to 15 kWh/sqm	6	TRUE
	Reduce heat entering a building through providing/improving insulation and living roofs and walls	2	TRUE
	Reduce heat entering a building through shading	3	TRUE
	Exposed thermal mass and high ceilings	4	FALSE
	Passive ventilation	3	TRUE
	Mechanical ventilation with heat recovery	1	TRUE
	Active cooling systems, i.e. Air Conditioning Unit	0	TRUE
	See Draft London Plan SI4		

2.2 Heat Generation

		Score	
b.	How have the heating and cooling systems, with preference to the heating system hierarchy, been selected (defined in London Plan policy **SI3)** Tick all heating and cooling systems that will be used in the development:		
	Connection to existing heating or cooling networks powered by renewable energy	6	FALSE
	Connection to existing heating or cooling networks powered by gas or electricity	5	FALSE
	Site wide CHP network powered by renewable energy	4	FALSE
	Site wide CHP network powered by gas	3	FALSE
	Communal heating and cooling powered by renewable energy	2	TRUE
	Communal heating and cooling powered by gas or electricity	1	TRUE
	Individual heating and cooling	0	FALSE
	See Draft London Plan SI3		

2.3 Pollution: Air, Noise and Light

a.	Does the development plan to implement reduction strategies for dust emissions from construction sites?	2	TRUE
b.	Does the development plan to include a biomass boiler?		FALSE
	If yes, please refer to the biomass guidelines for the Borough of Richmond, please see guidance for supplementary information. If the proposed boiler is of a qualifying size, you may need to complete the information request form found on the Richmond website.		
c.	Has an air quality impact assessment been provided		FALSE
	If yes, has 'Emissions Neutral' been achieved	1	Please Select:
	If yes, have occupants of new development been protected from existing pollution	1	Please Select:
	If no to any of the above are there any sensitive receptors as defined in Policy LP 10 present?	-1	Please Select:
	see Policy LP 10		
d.	Please tick only one option below		
	Has the development taken measures to reduce existing noise and enhance the existing soundscape of the site?	3	Please Select:
	Has the development taken care to not create any new noise generation/transmission issues in its intended operation?	1	TRUE
	see Policy LP 10		
e.	Has the development taken measures to reduce light pollution impacts on character, residential amenity and biodiversity?	3	TRUE
	see Policy LP 10		
f.	Have you attached a Lighting Pollution Report?	-	

Subtotal 24

Please give any additional relevant comments to the Energy Use and Pollution Section below

3. TRANSPORT

3.1 Provision for the safe efficient and sustainable movement of people and goods

a.	Does your development provide opportunities for occupants to use innovative travel technologies?		TRUE

Please explain:

Provision of EV charging points encourages transport to the development via EVs.

		Score	
b.	Does your development provide for 100% active provision for electric vehicle charging point(s) and have you successfully demonstrated that it would be able to operate satisfactorily in the future expectation of all vehicles being electrically powered?	2	FALSE
c.	**For major developments ONLY**: Has a Transport Assessment been produced for your development based on TfL's Best Practice Guidance? If you have provided a Transport Assessment as part of your planning application, please tick here and move to Section 3 of this Checklist.	5	Please Select:
	See policy LP44		
d.	**For smaller developments ONLY**: Have you provided a Transport Statement?	5	TRUE
e.	Does your development provide cycle storage? (Standard space requirements are set out in the Council's Parking Standards - Local Plan Appendix 3)	2	TRUE
	If so, for how many bicycles?	20	
	Is this shown on the site plans?		TRUE
	See Local Plan Appendix 3		
f.	Will the development create or improve links with local and wider transport networks? If yes, please provide details.	2	FALSE
		Subtotal	7

Please give any additional relevant comments to the Transport Section below

4 BIODIVERSITY

4.1 Minimising the threat to biodiversity from new buildings, lighting, hard surfacing and people

a.	Does your development involve the loss of an ecological feature or habitat, including a loss of garden or other green space? (Indicate if yes)				-2	FALSE
	If so, please state how much in sqm?				sqm	
b.	Does your development involve the removal of any tree(s)? (Indicate if yes)					TRUE
	If so, has a tree report been provided in support of your application? (Indicate if yes)					TRUE
c.	Does your development plan to add (and not remove) any tree(s) on site? (Indicate if yes)					TRUE
d.	Please indicate which features and/or habitats that your development will incorporate to improve on site biodiversity:					
	Pond, reedbed or extensive native planting	*6*	Area provided:	250	sqm	TRUE
	An extensive green roof	*5*	Area provided:	0	sqm	FALSE
	An intensive green roof	*4*	Area provided:	145	sqm	TRUE
	Garden space	*4*	Area provided:	20,000	sqm	TRUE
	Additional native and/or wildlife friendly planting to peripheral areas	*3*	Area provided:	6000	sqm	TRUE
	Additional planting to peripheral areas	*2*	Area provided:	2000	sqm	TRUE
	A living wall	*2*	Area provided:		sqm	FALSE
	Bat boxes	*0.5*				FALSE
	Bird boxes	*0.5*				FALSE
	Swift boxes	*0.5*				FALSE
	Other	*0.5*				FALSE
e.	Does your development use at least 70% of available roof plate as green/brown roof *Policy LP 17 requires 70%*				1	FALSE
					Subtotal	**19**

Please give any additional relevant comments to the Biodiversity Section below

ATKINS
Member of the SNC-Lavalin Group

5 FLOODING AND DRAINAGE

5.1 Mitigating the risks of flooding and other impacts of climate change in the borough

a.	Is your site located in a high flood risk zone (Zone 3)? (Indicate if yes)		-2	FALSE
	Have you submitted a Flood Risk Assessment? (Indicate if yes)			TRUE
b.	Which of the following measures of the drainage hierarchy are incorporated onto your site? (tick all that apply)			
	Store rainwater for later use		5	FALSE
	Use of infiltration techniques such as porous surfacing materials to allow drainage on-site		3	TRUE
	Attenuate rainwater in ponds or open water features		4	TRUE
	Store rainwater in tanks for gradual release to a watercourse		3	TRUE
	Discharge rainwater directly to watercourse		2	TRUE
	Discharge rainwater to surface water drain		1	TRUE
	Discharge rainwater to combined sewer		0	TRUE
	Have you submitted a Drainage Statement (Indicate if yes)			TRUE
	See Policy LP 21 and Draft London Plan SL 13			
c.	Please give the change in area of permeable surfacing which will result from your development proposal:		sqm	
	Please provide details of the permeable surfacing below	*please represent a loss in permeable area as a negative number*		
			Subtotal	13

Please give any additional relevant comments to the Flooding and Drainage Section below

6 IMPROVING RESOURCE EFFICIENCY

6.1 Reduce waste generated and amount disposed of by landfill though increasing level of re-use and recycling

a.	Will demolition be required on your site prior to construction? *[Points will only be awarded if 10% or greater of demolition waste is reused/recycled]*		1	TRUE
	If so, what percentage of demolition waste will be reused in the new development?		%	
	What percentage of demolition waste will be recycled?		%	
b.	Does your site have any contaminated land?		1	TRUE
	Have you submitted an assessment of the site contamination?		2	FALSE
	Are plans in place to remediate the contamination?		2	FALSE
	Have you submitted a remediation plan?		1	FALSE
	Are plans in place to include composting on site?		1	FALSE
c.	Will a waste management plan and facilities be in place in line with Policy LP24			

6.2 Reducing levels of water waste

a.	Will the following measures of water conservation be incorporated into the development? (Please tick all that apply):			
	Fitting of water efficient taps, shower heads etc		1	TRUE
	Use of water efficient A or B rated appliances		1	TRUE
	Rainwater harvesting for internal use		4	FALSE
	Greywater systems		4	FALSE
	Fit a water meter		1	TRUE
			Subtotal	4

Please give any additional relevant comments to the Improving Resource Efficiency Section below

ATKINS
Member of the SNC-Lavalin Group

7 ACCESSIBILITY

7.1 Ensure flexible adaptable and long-term use of structures

a. **If the development is residential,** will it meet the requirements of the nationally described space standard for internal space and layout? *1* **Please Select:**

If the standards are not met, in the space below, please provide details of the functionality of the internal space and layout

AND

b. **If the development is residential**, will it meet Building Regulation Requirement M4 (2) 'accessible and adaptable dwellings'? *2* **Please Select:**

If this is not met, in the space below, please provide details of any accessibility measures included in the development.

For major residential developments, are 10% or more of the units in the development to Building Regulation Requirement M4 (3) 'wheelchair user dwellings'? *1* **Please Select:**

OR

c. **If the development is non-residential,** does it comply with requirements included in Richmond's Local Plan LP1, LP28.B, LP30 & LP45 *2* **TRUE**

Please provide details of the accessibility measures specified in the Local Plan that will be included in the development

existing TYM facilities by providing a learning environment that is accessible all year round (rather than just seasonal) and will be of high quality. It includes multi-use facilities and will also include accomodation facilities. The facilities will promote health

Subtotal 2

Please give any additional relevant comments to the Design Standards and Accessibility Section below

LBRUT Sustainable Construction Checklist- Scoring Matrix for *New Construction* **(Non-Residential and domestic refurb)**

TOTAL 77

Score	Rating	Significance
84 or more	*A+*	Project strives to achieve highest standard in energy efficient sustainable development
75-83	*A*	Makes a major contribution towards achieving sustainable development in Richmond
56-74	*B*	Helps to significantly improve the Borough's stock of sustainable developments
40-55	*C*	Minimal effort to increase sustainability beyond general compliance
39 or less	*FAIL*	Does not comply with SPD Policy

LBRUT Sustainable Construction Checklist- Scoring Matrix for New Construction **Residential new-build**

Score	Rating	Significance
85 or more	A++	Project strives to achieve highest standard in energy efficient sustainable development
68-84	*A+*	Project strives to achieve higher standard in energy efficient sustainable development
59-67	*A*	Makes a major contribution towards achieving sustainable development in Richmond
39-58	*B*	Helps to significantly improve the Borough's stock of sustainable developments
24-38	*C*	Minimal effort to increase sustainability beyond general compliance
23 or less	*FAIL*	Does not comply with SPD Policy

Authorisation:

I herewith declare that I have filled in this form to the best of my knowledge

Signature Antonino Saporito **Date** 11/10/2022

8. Appendix B – BREEAM pre-assessment

Nova North
11 Bressenden Pl
London
SW1E 5BY