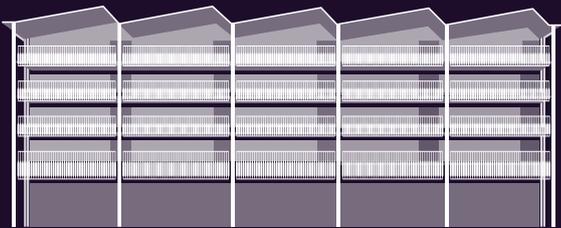

CANADA WATER MASTERPLAN



Sustainability Statement Plot A2

May 2018

AECOM

Quality information

Revision History					
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Executive Summary

This Sustainability Statement has been prepared by AECOM and is submitted in support of a hybrid planning application for the Canada Water Masterplan on behalf of BL CW Holdings Ltd, a subsidiary of British Land Company Plc ("The Applicant"), hereafter referred to as "British Land". The hybrid planning application is formed of detailed development proposals in respect of Plots A1, A2 and K1 for which no matters are reserved ("Detailed Proposals"), and outline development proposals for the remainder of the Site, with all matters reserved ("Outline Proposals").

The purpose of this Sustainability Statement is to outline the sustainability features incorporated specifically in Plot A2 and provide an account of how Plot A2 addresses national, regional and local sustainability policies.

The proposals for Plot A2 include a single building with a combination of office use from ground floor to fifth floor, and leisure centre on lower ground and basement floors that includes an 8-lane, 25m swimming pool. In addition, circa 1,000m² of retail is located on the ground floor.

This Sustainability Statement has been structured around the Greater London Authority's (GLA's) and Southwark Council's sustainable development aims and objectives, and specifically addresses the Mayor of London's Sustainable Design and Construction Guide (SPG 2014) and Southwark Council's Supplementary Planning Document on sustainability assessments.

As per the Mayor's priorities, Plot A2 will be delivered on previously developed land, and the currently existing structures including an open block paved parking lot, a petrol station and vehicular roads would need to be demolished to facilitate the development. The scale and density of the Development aim to optimise the potential of the site, while considering the local context: Plot A2 is an excellent location for the office and leisure centre, as it is in close proximity to Canada Water station for required connectivity. The leisure centre is also well located in terms of connections to the local community as it is readily accessible from a number of surrounding neighbourhoods. The building design makes reference to the historical local context of sheds and warehouses that once occupied Canada Water.

The proposals have considered the energy performance of the building and details are provided in a standalone Energy Statement. To summarise the energy strategy proposals, Plot A2 would aim to achieve the following improvements over Part L of the Building Regulations via energy efficiency and passive design:

- 29% for the office /retail component
- 14% reduction for the leisure centre; and
- 23% reduction for the building as a whole.

Measures incorporated include improved U-values and air-tightness, energy efficient lighting and Waste Heat Recovery. By utilising the waste heat from the office chillers to meet low grade heat demand in the leisure centre, the proposals leverage the opportunity to complement the energy use profiles between the end uses.

Furthermore, the energy strategy considered the GLA cooling hierarchy in an effort to reduce the potential for overheating and the reliance on air conditioning systems. This was achieved by minimising internal heat generation through energy efficient design; reducing the amount of heat

entering the building in summer; and use of thermal mass and high ceilings to manage the heat within the building.

In addition to these energy efficient and passive design features, on-site energy generation of renewable energy would take place via the implementation of a 365m² PV array and a 285m² solar thermal array. These will be located on the south facing folds of the roof to maximise their efficiency.

With the incorporation of the above measures, overall Plot A2 would expect to achieve the following reductions in regulated CO₂ emissions:

- a 35% reduction for the office/retail component;
- a 20% reduction for the leisure centre component; and
- a 29% reduction for the building as a whole.

The design of Plot A2 will also aim to minimise internal potable water consumption. This will be achieved through the specification of low-flush and flow sanitary fittings for WCs, urinals and taps. Greywater is currently proposed to be collected and used for toilet flushing, further reducing potable water demand. Finally, water metering and a water-efficient irrigation strategy will also be implemented.

Opportunities for re-use and recovery of materials and ability to offer flexibility for change and has been investigated during dedicated workshops at early design stages. The findings have been summarised within a project-specific Materials Efficiency report¹. The report outlined the key resource efficiency opportunities investigated. Overall the proposals will give preference to materials with lower environmental impacts, for example by selecting materials in line with the BRE Green Guide to Specification or with robust environmental information, such as Environmental Product Declarations; and FSC certified timber, where feasible. A number of materials have been explored at early design phase including their feasibility for the proposed uses, as well as construction and procurement implications.

A sustainable procurement plan would be developed by the contractor and new materials, including building elements and finishes will be responsibly sourced (as defined by BRE), where feasible.

During construction, opportunities will be taken to minimise and reduce waste; waste management arrangements will aim to minimise any potential risks to the environment and human health throughout the demolition and construction phase by the application of appropriate measures. A pre-demolition audit will be undertaken to assess the existing structures and identify materials that can be re-used.

During the operational phase, waste will be segregated between compacted (residual, paper, cardboard and plastics) and uncompacted (mixed metals, glass and food) waste streams, producing a total of 19.7m³ of compacted waste. To manage this waste, a store, sized at 66m², will be provided for all commercial waste, sized to accommodate two days of waste generation. Organic waste from the retail units will be segregated at source. The FM team will collect the food waste and transfer it to the corresponding container in the waste store. The waste contractor will send the food waste for composting or anaerobic digestion.

¹ AECOM: Canada Water Plot A.2, Material Efficiency Report, Stage 1 & 2. November 2017.

Relevant to biodiversity, the Ecological Assessment indicated that the landscape proposals would have a beneficial effect once the Development is completed and operational; while, the implementation of a Construction Environmental Management Plan which would prescribe routine environmental management control measures would minimise any impacts of construction activities to ecological receptors.

Every above ground floor would have access to external amenity space. Accessible 3m deep balconies are located along the entire front of the building facing the dock, as well as the north façade, providing opportunity for office users to sit and enjoy views of the dock and down the high street. On the top floor of the building, an external terrace 7.5m deep by 24m wide will be located on the north-west corner of the main block.

Visual comfort has actively informed the development of the design of the building. Daylight penetration has been carefully balanced to maximise occupant comfort while limiting solar gains. The double height space of the ground floor for example, allows natural light and views into the lower level. The folded roof structure also provides opportunity for natural light to the top floor of the office on the north side, and incorporation of solar panels on the south side.

All surface water from Plot A2 would discharge to Canada Water Dock; this would be unrestricted. Some small localised areas from Plot A2 would be pumped into the wider site-wide surface water drainage system before discharging by gravity to Canada Water Dock, however this would be minimised. Development discharge of surface water to sewers is proposed at 50% of the existing rate as per the London Plan requirements.

Finally, in terms of sustainable modes of transport, the site is accessible by a range of modes including walking, cycling and public transport. Local amenities including the rail station and bus stops are also available within walking and cycling distances. The nature of the Proposed Development will benefit from this level of accessibility. The development is car free with the exception of four accessible parking bays.

Plot A2 is promoting access by bicycle through the provision of a bike hub in the basement area. The cycle parking provision has been designed to meet the London Plan (2016) planning policy standards. Supporting facilities will also be provided in the bike hub including showers, changing and drying space.

1. Introduction

- 1.1 This Sustainability Statement has been prepared by AECOM and is submitted in support of a hybrid planning application for the Canada Water Masterplan. The hybrid planning application is made in relation to land bounded by Surrey Quays Road to the north, Lower Road (A200) to the west, Redriff Road (B205) to the south, Quebec Way to the east (the "Site") on behalf of BL CW Holdings Ltd, a subsidiary of British Land Company Plc ("The Applicant"), hereafter referred to as "British Land". The hybrid planning application is formed of detailed development proposals in respect of Plots A1, A2 and K1 for which no matters are reserved ("Detailed Proposals"), and outline development proposals for the remainder of the Site, with all matters reserved ("Outline Proposals"). Detailed Proposals and Outline Proposals together are referred to as the "Development".
- 1.2 The purpose of this document is to outline the sustainability features incorporated specifically in Plot A2 and provide an account of how national, regional and local sustainability policies are addressed.
- 1.3 This document has been prepared using information included in a number of documents that form part of the planning application for the Development. The sustainability measures described herein have been developed in consultation with members of the design team.
- 1.4 The following documents have been consulted while developing this statement:
- 1.5 Energy Strategy, Canada Water Masterplan, Plot A2, AECOM, February 2018;
- Design and Access Statement (DAS), Canada Water, Plot A2, A&M, February 2018;
 - Environmental Impact Assessment, Waterman, February 2018
 - ✓ Chapter 11: Ground Conditions and Contamination
 - ✓ Chapter 12: Water Resources and Flood Risk
 - ✓ Chapter 13: Ecology.

PROPOSED DEVELOPMENT DESCRIPTION

- 1.6 The Development comprises the comprehensive redevelopment of the Surrey Quays Shopping Centre, former Harmsworth Quays Printworks and Surrey Quays Leisure Park sites, former Dock Offices Courtyard, former Rotherhithe Police Station and land at Roberts Close. The Development will provide new retail, office, leisure and community floorspace along with residential dwellings. The Development will also provide significant, high quality public realm, including a new Town Square, a new High Street and a public park.
- 1.7 The Plot A2 site is on the western edge of Canada Water basin with one primary frontage facing east to the realigned Deal Porters Way with direct views over the water.
- 1.8 The proposals for Plot A2 include a combination of office use from ground floor to fifth floor (around 21,000m²), and leisure centre on the lower ground and basement floors (around 6,800 m²) that includes an 8-lane, 25m swimming pool. In addition circa 1,000m² of retail is located on the ground floor fronting the deck.
- 1.9 Accessible 3m deep balconies are located along the entire front of the building facing the dock. On the top floor of the building, an external terrace 7.5m deep by 24m wide is located on the north east corner of the main block. A small balcony between the main block and the cranked smaller block on the north elevation allows views and engagement onto the Dock Office courtyard.
- 1.10 The leisure centre fronts the southern end of the dock office courtyard and offers visual links to the uses provided within. A large entrance hall on the ground floor provides opportunities for cafe/retail, informal working, art installations, evening lectures, larger office events etc.

PLANNING CONTEXT

1.11 The main drivers of this Sustainability Statement are summarised below:

National Policy

- 1.12 A timeline of policies that have been implemented by the Government with respect to combatting global warming and climate change and supporting sustainable development is illustrated below:
- The Department of Transport and Industry White Paper entitled Our Energy Future – Creating a Low Carbon Economy, 2003;
 - Sustainable and Secure Buildings Act 2004;
 - Climate Change and Sustainable Energy Act 2006;
 - The department for Communities and Local Government (CLG)'s Building A Greener Future: Towards Zero Carbon Development, 2006;
 - The Department of Transport and Industry White Paper entitled Meeting the Energy Challenge, 2007;
 - The Climate Change Act 2008;
 - The Planning and Energy Act 2008;
 - The Carbon Plan, 2011;
 - The National Planning Policy Framework (NPPF), 2012;
 - The Energy Act 2013;
 - The Deregulation Act 2015; and
 - The Productivity Plan, Fixing the Foundations: Creating a More Prosperous Nation (July 2015).

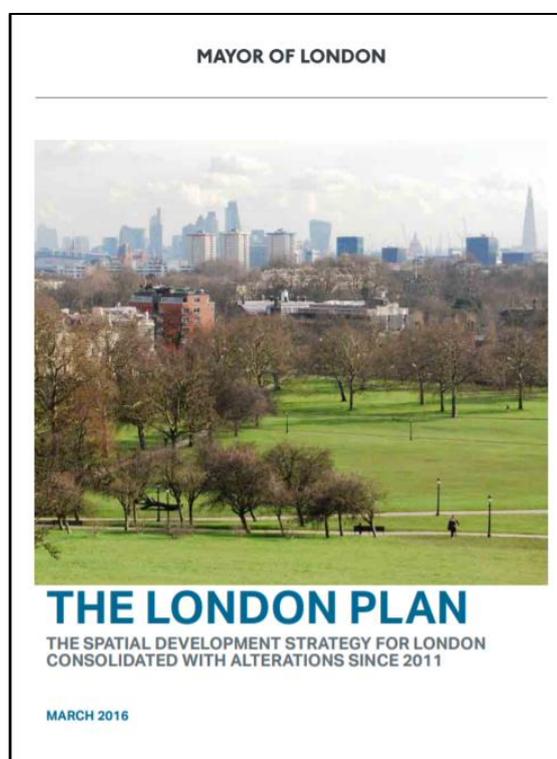
Regional Policy

- 1.13 The regional policy consists of The London Plan (The Spatial Development Strategy for London Consolidated with Alterations since 2011, March 2016), Energy Planning – Greater London Authority Guidance on Preparing Energy Assessment (March 2016) and a number of supplementary documents such as:
- *Sustainable Design and Construction* Supplementary Planning Guidance (2014);
 - Delivering London's Energy Future: The Mayor's Climate Change Mitigation and Energy Strategy (2011); and
 - London Heat Network Manual (2014).

1.14 The London Plan retains the fundamental objective of accommodating London's population and

economic growth through sustainable development via the following key London Plan policies:

- Policy 3.2: Improving Health & Addressing Health Inequalities;
- Policy 4.12: Improving Opportunities for All;
- Policy 5.1: Climate Change Mitigation;
- Policy 5.2: Minimising CO₂ emissions;
- Policy 5.3: Sustainable Design and Construction;
- Policy 5.4 Retrofitting;
- Policy 5.5: Decentralised Energy Networks;
- Policy 5.6: Decentralised Energy in Development Proposals;
- Policy 5.7: Renewable Energy;
- Policy 5.8: Innovative Energy Technologies;
- Policy 5.9: Overheating and Cooling (Cooling Hierarchy);
- Policy 5.10: Urban Greenery;
- Policy 5.11: Green Roofs & Development Site Environs;
- Policy 5.12: Flood Risk Management;
- Policy 5.13: Sustainable Drainage;
- Policy 5.14: Water Quality & Waste Water Infrastructure;
- Policy 5.15: Water Use & Supplies;
- Policy 5.18: Construction, Excavation and Demolition Waste;
- Policy 5.20: Aggregates;
- Policy 5.21: Contaminated Land;
- Policy 6.3: Assessing Effects of Development on Transport Capacity;
- Policy 6.9: Cycling;
- Policy 6.10: Walking;
- Policy 6.13: Parking;
- Policy 7.3: Designing out Crime;
- Policy 7.6: Architecture;
- Policy 7.14: Improving Air Quality;
- Policy 7.15: Reducing & Managing Noise, Improving & Enhancing the Acoustic Environment & Promoting Appropriate Soundscapes; and



- Policy 7.19: Biodiversity & Access to Nature.

- 1.15 The Sustainable Design and Construction SPG provides guidance on how to achieve the London Plan objectives effectively, supporting the Mayor's strategic targets. It sets out a series of the Mayor's Priorities and Best Practice ambitions as follows, against which the following sections are organised:
- Resource management – land (including basements and lightwells and local food growing), Site layout and building design, energy and carbon dioxide emissions, water efficiency, materials (including reuse of waste), nature conservation and biodiversity;
 - Climate change adaptation – overheating, heat and drought resistant planting, resilient foundations, urban greening, trees, surface water flooding, flooding and risk management; and
 - Pollution management – contaminated land, air pollution, noise pollution, light pollution, water pollution (surface and waste water treatment).
- 1.16 At the time of writing, a new London Plan is under consultation. The emerging London Plan, which is likely to be adopted in 2019, will set out a framework for development of London over the next 20-25 years. It requires that all major developments are net zero-carbon; in meeting the zero-carbon target a minimum on-site reduction of at least 35 per cent beyond Building Regulations is expected.
- 1.17 Where it is clearly demonstrated that the zero-carbon target cannot be fully achieved on-site, any shortfall should be offset either through a cash in lieu contribution to the relevant borough's carbon offset fund, and/or by providing an alternative proposal off-site.
- 1.18 In addition, the emerging London Plan requires energy masterplans to be developed for large-scale development locations, which establish the most effective energy supply options.
- 1.19 The new London Plan further recommends an increased carbon price for those developers contributing to carbon offset funds, of £95/tonne of carbon.

Local Planning Policy

- 1.20 Southwark Council are in the process of developing a new Southwark Plan, which will be a new borough-wide planning and regeneration strategy up to 2033. At the time of writing (September 2017) the Plan is in consultation.
- 1.21 Until the new Southwark Plan is adopted, the local plan consists of:
- Saved Southwark Plan policies (2007)
 - Southwark Core Strategy (2011)
- 1.22 The Southwark Core Strategy 'Strategic Policy 1 – Sustainable development', indicates that the Council requires a sustainability assessment with applications to show how a scheme is the best possible development for a place by balancing economic, social and environmental needs. 'Strategic Policy 13 – High environmental standards', sets out targets for new development, indicating that
- Non-residential development should achieve at least BREEAM "excellent" rating;

- Major development should achieve a 35% saving in carbon dioxide emissions above the building regulations from energy efficiency, efficient energy supply and renewable energy generation;
- Major development must achieve a reduction in carbon dioxide of 20% from using on-site or local low and zero carbon sources of energy;
- Major development must reduce surface water run-off by more than 50%.

1.23 Southwark have also developed a Supplementary planning document on Sustainability Assessments (2009). The SPD provides minimum standards which proposals will be expected to meet, as well as preferred standards and a checklist which should be completed and submitted with planning applications.

2. Assessment Methodology

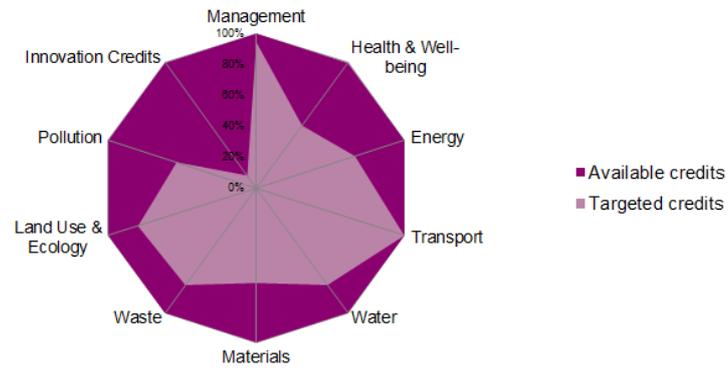
- 2.1 This Sustainability Statement has been structured around the GLA and Southwark Council's sustainable development aims and objectives, and objectively assesses/reviews the sustainability features included in Plot A2 of the Development. Specifically, the following areas are examined, as listed in the London Plan 2016, the Mayor of London Sustainable Design and Construction SPG 2014 and Southwark's Policy Documents:
- Resource management
 - Climate change adaptation
 - Pollution management
 - Sustainable Design and Construction
 - Sustainable transport
- 2.2 The following sections detail the sustainability credentials of Plot A2, against the above topics. The sustainability measures described in this Sustainability Statement were developed in consultation with members of the project team through the review of various documents listed in Section 1: Introduction.
- 2.3 This document also aims to address and respond to the specific questions in Southwark Council's Sustainability Checklist. A copy of the Checklist is provided in Appendix A.
- 2.4 Furthermore, the Office, Retail and Leisure Centre elements of the Proposed Development have been pre-assessed against the BREEAM UK New Construction 2014 scheme and the details of the pre-assessment are provided in Section 3 and Appendix B of this report.

3. Independent Sustainability Appraisal

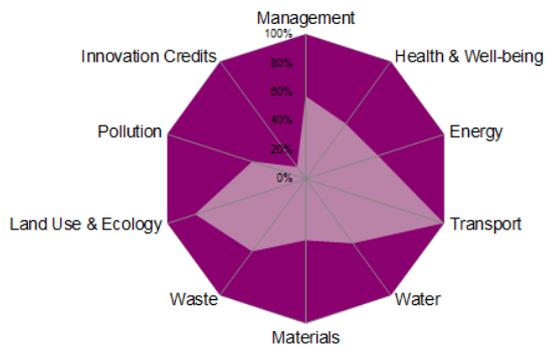
- 3.1 An independent sustainability appraisal scheme has been used to assess the performance of the Office, Retail and Leisure Centre elements of Plot A2. Specifically these uses were registered and assessed at the preliminary stage against the BREEAM UK New Construction (NC) 2014 scheme with the following scope:
- Office: Shell and Core
 - Retail units: Shell only
 - Leisure Centre: Fully Fitted
- 3.2 The BREEAM NC UK 2014 methodology assesses buildings on the basis of credits for a set of performance criteria covering issues such as energy, transport, water, materials, waste, pollution, health and well-being, management, and ecology.
- 3.3 The table below shows the BREEAM targeted score for each of the assessed uses within Plot A2 in relation to the scoring threshold levels as prescribed within the assessment methodology. The BREEAM pre-assessment is provided in Appendix B of this report detailing all requirements and assumptions; furthermore, the following sections of this report provide details on the sustainability measures proposed that will contribute to the achievement of these targeted ratings.

Table 1 BREEAM Pre-assessment: Preliminary Results

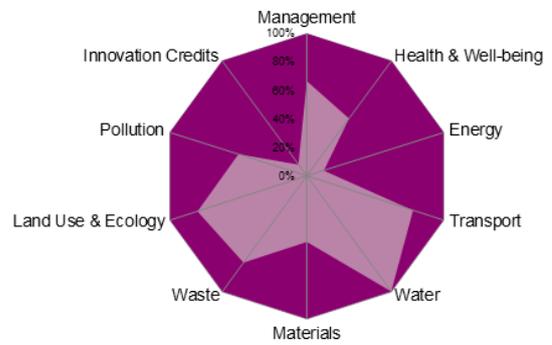
Assessment	Office	Retail	Leisure Centre
Targeted score	73.40%	57.40%	58.50%
Minimum Score required	70.00%	55.00%	55.00%
Target BREEAM Rating	Excellent	Very Good	Very Good



BREEAM Performance: Offices



BREEAM Performance: Leisure Centre



BREEAM Performance: Retail

Figure 1 Estimated BREEAM target scores

4. Sustainability Assessment

RESOURCE MANAGEMENT

Land

- 4.1 In line with the Mayor's Priorities as set out in the Sustainable Design and Construction SPG and the London Plan, the proposals will be delivered on previously developed land.
- 4.2 The site of Plot A2 is an irregularly shaped plot of approximately 1.3 acres (5,000m²). At its widest it stretches 108m east-west and 60m north-south. It is located in the north west corner of the masterplan site boundary, benefiting from proximity to Canada Water station and a frontage onto Canada Water Dock. To the north the site is bordered by the existing Grade II former Dock Offices. To the south and west, the site is bordered by existing residential developments - including a terraced street on Hothfield Place and a mid-rise tower block facing onto Lower Road. The site is on the western edge of Canada Water basin. The existing use is predominantly hard standing and includes an open block paved parking lot, a petrol station and vehicular roads with some elements of soft landscaping. The petrol station would need to be demolished to facilitate the Development.
- 4.3 Plot A2 is an important and prominent site within the emerging masterplan. It fronts directly onto the Canada Water dock at the top of the new High Street, running from Canada Water Station to Surrey Quays Station. Directly to the east is an important stretch of public realm fronting directly onto the dock. To the north of Plot A2 lies the Dock Office Courtyard, which will be redeveloped alongside the listed dock office to create an attractive new community square within the local area.
- 4.4 Overall the proposals on Plot A2 optimise the potential of the site, while considering the local context through the provision of a mixed use commercial scheme, consisting of office and retail space and the leisure centre. The design approach references historical sheds and warehouses that once occupied Canada Water, making a direct reference to the local and historical context.
- 4.5 Plot A2 is an excellent location for the office and leisure centre, as it is in close proximity to Canada Water station. The leisure centre is also well located in terms of connections to the local community as it is readily accessible from a number of surrounding neighbourhoods.
- 4.6 The leisure centre will be located on the lower ground and basement levels, facing north onto the new Dock Office Courtyard. The retail uses and the main entrance to the office building will be located on the eastern side of the building's ground floor, facing onto the High Street. The ground floor will also contain back-of-house essential uses such as refuse store, loading bay, showers and changing facilities, some plant areas and the core. The office spaces have been located on upper floors 1-5, with some plant and PV on levels 4 and 5.
- 4.7 The layout of the basement aligns alongside the London Overground Line.
- 4.8 Plot A2 falls within the London View Management Framework (LVMF) viewing corridor between Greenwich Observatory and St. Paul's Cathedral, restricting the height of the building to 30m AOD.

Energy, Carbon Dioxide Emissions and Renewable Energy

4.9 The proposed service strategy for the building is as follows:

Office

4.10 Heating: three natural gas-fired, low NOx boilers (615kW each). These are collectively sized to meet 100% space heating and domestic hot water load.

4.11 Cooling: three water cooled chillers (525kW each). They are collectively sized to meet 100% load. The condenser circuit for the chillers will be connected to: (a) Heat recovery system serving the Leisure Centre heating systems, and (b) Adiabatic heat rejection units.

4.12 Ventilation: three roof level Air Handling Units (AHUs) with high efficiency heat recovery via thermal wheels, inverter driven variable speed motors and low Specific Fan Power (SFP).

Leisure Centre

4.13 Heating: three natural gas fired, low NOx 350kW boilers.

4.14 The Low Temperature Hot Water (LTHW) is pumped to: (a) centralised Air Handling Unit heating coils, (b) Fan Coil Units in certain rooms where higher temperatures are necessary.

4.15 Heat demand is also met by a solar thermal array fixed to south-east facing roof level panels.

4.16 The leisure centre also benefits from waste heat recovered from the office chiller heat rejection circuit.

4.17 Cooling: single air-cooled 220kW package chiller high Seasonal Energy Efficiency Ratios (SEER).

4.18 Chilled Water is pumped to: (a) Centralised Air Handling Unit ('Dry Areas') cooling coils, (b) Fan Coil Units in certain rooms where lower temperatures are necessary.

4.19 Ventilation: three main AHU systems serving: (a) Wet Areas – Pool Halls (13.5m³/s), (b) Wet Areas – Wet Changing Rooms (7.2m³/s), (c) Dry Areas (5.8m³/s).

4.20 AHUs will have high efficiency heat recovery, either as thermal wheels for Dry Area systems, or as crossflow heat exchangers for Wet Area systems. They will also have inverter driven variable speed motors and low SFP levels.

Retail

4.21 These areas will generally be autonomously serviced and treated as a Shell & Core space.

4.22 Plant space has been set aside at ground floor and external to the retail unit demise for locating heat pump (DX) system condenser units; these could provide both heating and cooling facility for the unit. This space will need to be connected to the façade to ensure external ambient conditions for the equipment to work satisfactorily.

CO₂ emissions quantification

- 4.23 To quantify the energy consumption and associated CO₂ emissions for Plot A2, and demonstrate how Plot A2 design development has given consideration and achieved reductions in energy consumption and associated CO₂ emissions an Energy Strategy has been prepared (Energy Strategy, Canada Water Masterplan, Plot A2, AECOM, February 2018), and is submitted under a separate cover alongside the planning application.
- 4.24 The Energy Strategy was developed to reflect the GLA's recommended energy hierarchy: 'Be Lean, Be Clean, Be Green', as set out in the London Plan. Emphasis has been placed on reducing energy demand for the building and subsequently reducing carbon emissions in accordance with national, regional and local planning policy requirements and considering the site specific requirements.
- 4.25 The Plot A2 Energy Strategy aligns with British Land's Canada Water Masterplan Energy Strategy, which in turn sits within the Masterplan Sustainability Strategy (submitted separately in support of this hybrid planning application).
- 4.26 The Masterplan Energy Strategy explored various options for providing low carbon energy to Canada Water, in line with Southwark Council and GLA policies. This includes consideration of decentralised energy systems, combined heat and power and other technologies.
- 4.27 Detailed analysis showed that in this case, combined heat and power (CHP) systems are not appropriate for this development for the following primary reasons:
- They do not deliver the lowest carbon dioxide emissions, given electrical grid decarbonisation; and
 - They do not help to protect local air quality.
- 4.28 The Masterplan Energy Strategy has concluded that each plot should develop a plot-specific, optimised energy solution using the best available technology at the time and aligning with GLA policy. The energy strategy for this plot follows this approach.
- 4.29 Accounting for these considerations, the Plot A2 Energy Strategy was developed to first consider passive design and energy efficiency measures to minimise the building's energy demand. The performance of the building envelope was optimised through specification of improved U-values of the thermal elements and controlled fittings over the minimum Building Regulations ADL 2A 2013 requirements. High performance double glazing and improved building air-tightness has also been achieved, targeting a value of 3 (m³/h/m²) @ 50Pa. Furthermore, natural daylight has been promoted, which will reduce energy demand for artificial lighting.
- 4.30 Energy efficiency measures include efficient lighting; AHUs with high efficiency heat recovery via thermal wheels, inverter driven variable speed motors and low Specific Fan Power; and notably, waste heat recovered from the office chiller heat rejection circuit to meet the low-grate domestic hot water demand in the leisure centre.
- 4.31 The Energy Statement demonstrated that Plot A2 could achieve the following reductions in regulated CO₂ emissions:
- a 29% reduction for the office/retail component;
 - a 14% reduction for the leisure centre component; and
 - a 23% reduction for the building as a whole.

- 4.32 The potential for connection to nearby low carbon heat distribution networks was investigated. There are no existing DH schemes in close proximity to the site. However, there are plans to extend the existing South East London Combined Heat and Power (SELCHP) heat network towards the Development.
- 4.33 In light of this decentralised network, Plot A2 will be future proofed to make allowance for connection should the SELCHP network become available.
- 4.34 An on-site Combined Heat and Power (CHP) option has also been investigated but was not proposed for Plot A2 due to the concerns identified in the Masterplan Energy Strategy relevant to this technology.
- 4.35 An analysis of the feasibility of on-site renewable energy technologies was undertaken. The analysis identified the opportunity to incorporate Photovoltaic (PV) panels and a solar thermal array in the roof design of Plot A2 in order to provide on-site electricity generation and meet a portion of the hot water demand, respectively. A PV array of approximately 365m² (circa 73 kWp, dependent on the panel's efficiency) has been identified as potentially feasible to provide renewable electricity in the office and retail landlord areas; and a solar thermal array of 285m² (sized to target optimum amount of CO₂ savings, while qualifying for a Renewable Heat Incentive (RHI) funding), could serve part of the leisure centre's water heating demand requirements.
- 4.36 Finally, Air Source Heat Pump (ASHP) systems of high efficiency (Coefficient of Performance level of 3.5 in heating mode) were identified as an appropriate technology to serve the space conditioning demands of the retail areas (it should be noted that the services specified for the retail units are based on the current understanding of a notional tenant fit-out. The final fit-out specification will be detailed at a later design stage as the services would be developed by the incoming tenant). The heat pumps will also be serving a small proportion of the leisure centre and the office space heating demand to cover the needs of some ancillary areas (i.e. building management room).
- 4.37 This 'be green' scheme could provide circa 6% reduction in regulated CO₂ emissions over the baseline scheme.
- 4.38 Overall the Energy Strategy demonstrated that Plot A2 has the potential to achieve the following reductions in regulated CO₂ emissions from the baseline:
- a 35% reduction for the office/retail component;
 - a 20% reduction for the leisure centre component; and
 - a 29% reduction for the building as a whole.
- 4.39 To ensure future proofing of the building, basement plant-space has also been allowed for a Plate Heat Exchanger for potential connection to an off-site Energy Centre, should that become available in the future.
- 4.40 The Energy Statement stated that the strategy achieved was considered feasible at current design stage. A review of the strategy could be undertaken prior to construction, to take into account the rapid pace of product innovation and development in this sector. This approach aims to capture the most appropriate and advantageous solution at time of construction

Water

- 4.41 The design of Plot A2 will aim to minimise internal potable water consumption. This will be achieved through the specification of water-efficient sanitary fittings such as WCs, urinals and taps, in accordance with the optional water efficiency requirements of the Building Regulations Approved Document Part G.
- 4.42 In addition, the Proposed Development will be fitted with water meters, a leak detection system capable of detecting a major water leak on the mains water supply, and flow control devices that regulate the supply of water to each WC area/facility according to demand. These will encourage the reduction of water consumption allowing metering, managing and monitoring of water usage.
- 4.43 Water recycling will be also employed to further reduce potable water demand for toilet flushing. Specifically in the office areas, collected grey water will be treated and reused for flushing WCs.
- 4.44 For the leisure centre and to provide an appropriate quality of water in the pools, a treatment system will be employed to remove the pollutants introduced by users. The treatment system will address three generic water quality issues:
- Physical, which is largely about removing suspended and colloidal matter from the water in order to maintain clarity
 - Microbiological, which is about prevention of cross infection between bathers
 - Chemical, which is about management of the interrelationship between organic pollution, disinfection products and enhanced treatment for water quality. The key objective of this is minimising chloramine levels.
- 4.45 The water treatment systems will provide a water quality in accordance with the relevant guidelines.
- 4.46 To reduce water demand for landscape irrigation the following measures would be introduced:
- working with the existing natural vegetation;
 - selecting drought-resistant plants;
 - using water-efficient irrigation, by either relying solely on precipitation or employing an automatic drip irrigation system to regulate watering as required depending upon weather conditions and control and optimise the amount of water use through soil moisture sensors.

Materials

- 4.47 Preference will be given to materials with lower environmental impacts. A number of materials have been explored at early design phase including their feasibility to the proposed uses, construction and procurement implications. The larger front building facing the dock comprises an outer layer of metal boards, with timber used as an internal lining for the accessible 3m deep balconies and shopfronts at ground floor level. Metal balustrades extend downwards beyond the depth of the balcony. Large timber doors open up to provide access to the balcony.
- 4.48 The smaller rear building facing Hothfield Place inverts the relationship between timber and metal boards to create an outwardly timber building.
- 4.49 Opportunities for re-use and recovery and the ability to offer flexibility for change and has been summarised within a Material Efficiency report². The report outlined key resource efficiency opportunities investigated, which are:
- Design for deconstruction and flexibility has been prioritised through architectural design and service engineering, including investigation of a series of structural design options and suitable materials.
 - Re-use of aggregates and asphalt from the demolished road and parking has been investigated. Due to lack of appropriate certification/documentation, it has been deemed not fit for use for structural concrete. However, there is opportunity during the construction phase to use GGBS as cement replacement subject to contractor's preference. The tender specification clauses will include a range of suggested cement replacements.
 - Off-site construction would be prioritised where possible. This could include components such as factory manufactured building service components (e.g. ductwork and risers), elements of the façade such as curtain walling, solar shading, the structural frame (steel sections), staircases etc.
 - A number of measures have been proposed to simplify the design. A steel frame structural system with standardised 4.5m spanned beams and columns with a 9m x 12m grid. Core areas have been grouped together and placed strategically to provide large open floor plates. Floor plates are replicated above ground. The simple linear form which is easy to construct. And internal walls of the leisure centre will be non-load bearing hence simplifying the overall structural system.
 - A Site Waste Management Plan (SWMP) or Resource Management Plan (RMP) will be produced by the contractor prior to construction which will contain a series of strategies to ensure a waste efficient procurement. In line with BREEAM requirements, it is expected that the project will target to limit construction waste to $\leq 7.5 \text{ m}^3$ of construction waste/100m² GIA (Gross Internal floor Area).
 - The extent of excavation works has been minimised where practically possible.

² AECOM: Canada Water Plot A.2, Material Efficiency Report, Stage 1 & 2. November 2017.

- 4.50 Materials will be selected in line with the BRE Green Guide to Specification or with robust environmental information, such as Environmental Product Declarations (EPDs). Furthermore, materials chosen will be robust, low maintenance and long lasting to suit the location and intended use.
- 4.51 A sustainable procurement plan would be developed by the contractor and new materials, including building elements and finishes will be responsibly sourced, where feasible, in accordance with the following certification of responsible sourcing:
- BES6001 (preferred) or ISO14001 (product manufacturer and supply chain);
 - FSC (Forest Stewardship Council) or PEFC (Programme for the Endorsement of Forest Certification) for solid timber and timber products.

Waste

- 4.52 Sustainable waste management procedures will be adopted during both the construction and operational phases to enable relevant waste minimisation and recycling.
- 4.53 Offsite construction has been prioritised throughout the design process which will assist to reduce waste generated; examples include:
- Use of factory manufactured building service components such as ductwork and risers.
 - Use of off-the-shelf components such as fan coil units.
 - Elements of the façade such as curtain walling.
 - Floor slabs will be a composite of pre-cast and in-situ concrete.
 - The structural frame will be formed of industry manufactured steel sections.
 - Staircases will be prefabricated either in steel or pre-cast concrete.
 - Toilet/superloo pods could be manufactured off-site and will be investigated at later design stages.

- 4.54 During construction, opportunities will be taken to minimise and reduce waste. Waste management arrangements will aim to minimise any potential risks to the environment and human health throughout the demolition and construction phase by the application of appropriate measures.
- 4.55 A pre-demolition audit that will be undertaken to assess the existing structures and identify materials that can be re-used, will also help set targets for waste management and help ensure that all contractors are engaged in the process of maximising high grade reuse and recycling opportunities.
- 4.56 Due consideration has been and will continue to be given to waste generated by Plot A2 during its operation. The building is estimated to generate a two-day total of 42.78m³ of waste. This waste is split between compacted (residual, paper, cardboard and plastics) and compacted (mixed metals, glass and food) waste streams, producing a total of 19.7m³ of compacted waste. To store this waste, a store, sized at 66m², has been provided for all commercial waste, sized to accommodate two days of waste generation.
- 4.57 Waste generated within the leisure centre and commercial offices will be collected by the contract cleaners or on-site facilities management team and brought to the waste store. Dry recyclables will be segregated per waste stream in both office and retail areas. Bins and bags will be colour coded and clearly labelled to help waste producers and the Facilities Management (FM) team responsible for transferring the waste to the waste room.
- 4.58 Organic waste from the retail units will be segregated at source. The FM team will collect the food waste and transfer it to the corresponding container in the waste store. The waste contractor will send the food waste for composting or anaerobic digestion. The waste store will be ventilated with a filter to prevent odour issues.
- 4.59 There may also be waste cooking oil produced in the catering areas. This will be placed in designated containers in the kitchen (within each retail unit). Once full, it should be properly sealed. A specific request should be sent to the FM team for its collection by a specialist waste contractor.
- 4.60 Trained staff within the FM team will use the appropriate waste processing equipment (cardboard baler and Eurobins press) to compact the waste.

NATURE CONSERVATION AND BIODIVERSITY

- 4.61 In line with BREEAM, London Plan and Local Policy requirements, the Proposed Development will aspire to ensure as a minimum that no negative change in the Site's existing ecological value will occur as a result of the proposals.
- 4.62 Chapter 13: Ecology of the Environmental Impact Assessment presented an assessment of the likely significant ecological effects of the Development. The construction and operational phases of the Development were considered.
- 4.63 The Assessment indicated that demolition and construction activities in Plot A2 would not have a direct effect on the Canada Water and Surrey Waters Site of Importance for nature Conservation (SINC). The construction of outfalls into the Dock to facilitate the surface water discharge from Plot A2 may be associated with some limited habitat loss; this was found to be insignificant and limited in extent given the working width requirement of the outfalls compared to the extent of Canada Water Dock. Furthermore the drainage system and surface water outfalls to Canada Water Dock would be designed to incorporate drainage solutions such as interceptors, filters or silt traps to avoid the discharge of fuels or oils.
- 4.64 Water levels within Canada Water Dock are not anticipated to fluctuate significantly with the proposed discharge of surface water.
- 4.65 Any increase in human activity around Canada Water Dock is unlikely to significantly affect breeding birds given the current levels of activity present and the proposed lighting strategy that aims to limit or avoid light spill into sensitive ecological areas.
- 4.66 Overall, the Ecology Chapter indicated that the landscape proposals would have a beneficial effect once the Development is completed and operational; while, the implementation of a Construction Environmental Management Plan which would prescribe routine environmental management control measures would minimise any impacts of construction activities to ecological receptors.

CLIMATE CHANGE ADAPTATION

- 4.67 A building-specific Adaptation to Climate Change Strategy study³ was undertaken for Plot A2 to capture how the building intends to mitigate the impact of extreme weather conditions arising from climate change over the lifespan of the building. The report aimed to address BREEAM 2014 credit West 05 – Adaptation to Climate Change.
- 4.68 The report was based on discussions during design team workshops and on correspondence with the design team, and addressed the following:
- Hazard identification
 - Hazard assessment
 - Risk estimation
 - Risk evaluation
 - Risk management.
- 4.69 Key design strategies proposed to mitigate climate change included:
- **Overheating:** The building will benefit from thermal mass of the concrete floor slabs which will help to regulate internal temperatures. Performance requirements of the curtain walling are being developed in collaboration with the building physicist which will ensure that specification is fit for purpose and appropriate to local weather. Furthermore, the development is adjacent to a water body (the dock) which provides evaporative cooling hence providing a cooler microclimate to areas adjacent to it, i.e., external areas of the development facing the dock.
 - **Water use, draught and flooding:** The building will have water meters and sub-meters to minimise water consumption and grey water recycling is proposed for office use which will reduce need for potable water supply. The drainage strategy includes draining into the adjacent dock to replenish water lost naturally. This will reduce the load of drainage system and has designed out the need for attenuation tanks. Adequate waterproofing will be provided throughout the development as necessary including a concrete bund around the swimming pool.
 - **Structural Instability:** The height of the building is restricted by local guidance, hence no wind testing is required. Furthermore deep piled foundations will be applied to the site to avoid issues of clay shrinkages in the shallower depths and dewatering will be implemented, if necessary.

³ Canada Water Plot A2, Adaptation to Climate Change Risk Assessment, November 2017

- 4.70 Overall, proposed design measures will assist to mitigate the impact of extreme weather conditions arising from climate change and it is recommended that they are further investigated and detailed as the design progresses. Further detail is provided in the following sections.

Tackling Increased Temperature and Drought

- 4.71 At a site level, the Plot is located adjacent to a waterbody (the dock) which provides evaporative cooling hence potentially providing a cooler microclimate to areas adjacent to it.
- 4.72 At the building level, this was first accomplished through passive design. For example, by reducing the amount of heat entering the building in summer, via the following measures:
- The glazing area of the building has been reduced in order to reduce solar gain.
 - High performance glass has been incorporated throughout the scheme (g-value = 0.28-0.40) in order to minimise solar gains during summer. Glazing has also been specified in such a way that it maximises the light transmittance (LT) to guarantee the occupiers' visual comfort. The visible transmittance currently modelled is 0.60 – 0.65.
 - A triple silver coating has been selected on most of the glazing (excluding retail and entrances where lower reflectance is required) that only admits 28% of solar gain.
 - A large overhang has been included above the large Leisure Centre windows to reduce direct solar gain.
 - Brise soleils are included on the south west and south east facades of the main building.
 - The roof projects over east facades to provide shading to the fifth floor.
- 4.73 Thermal mass and high ceilings are also used to manage the heat within the building. The ceilings will be exposed concrete in order to absorb excess heat and provide demand lopping. The slab will be pre-cooled at night via mechanical ventilation with controls that ensure it is not overcooled leading to additional heating demands.
- 4.74 Exposed ceilings also lead to higher ceilings, allowing stratification in the occupied spaces and reducing energy demands.
- 4.75 The design further aims to minimise internal heat generation through energy efficiency:
- Natural daylight has been promoted through careful design and appropriate orientation to minimise the use of artificial lighting.
 - All pipework will be highly insulated and pipe runs minimised wherever possible.
 - All lighting will be LED with occupancy sensing in most areas and daylight controls in perimeter zones to reduce heat gains.

- 4.76 Finally, the HVAC systems chosen for the building mean that free cooling can be employed whenever possible. This will reduce chiller demand, and will be controlled to ensure that free cooling is only employed when beneficial to the building and when resulting energy requirements from fans are lower than would be required for lower flow rates and chiller operation.
- 4.77 A façade optimisation study has been carried out that contributed to further improving thermal comfort for occupants and reducing cooling loads.
- 4.78 The combination of these measures would limit the effects of solar gains in summer and guarantee a pleasant environment for the occupiers.
- 4.79 Finally, the building has been designed to be resilient against extreme weather events and will be constructed to a high standard to ensure its durability. Measures have been incorporated to provide protection to the vulnerable areas of the building and improve the buildings robustness, therefore minimising the frequency of replacement and maximising materials optimisation.

Increasing green cover and trees

- 4.80 Plot A2 has been designed to maximise urban greening, where possible, taking full advantage of opportunities to introduce soft landscape.
- 4.81 Accessible 3m balconies are proposed on the facade facing the docks, while a series of planted terraces and window planter boxes to the rear of the building would also help mitigate overlooking issues for residents of Hothfield Place. A detailed description of the landscape proposals is provided in the DAS.
- 4.82 A Suitable Qualified Ecologist (SQE) has been appointed to further review opportunities for ecological enhancements and advice on increasing the ecological value of Site through working closely with the landscape architect on the selection of plant species at more detailed design stage.
- 4.83 Some further information on the current landscape proposals can be found in the DAS

Flooding and surface run-off management

- 4.84 A Flood Risk Assessment (FRA) has been undertaken by Waterman IE and submitted in support of the hybrid planning application as part of the Environmental Impact Assessment. Tidal, fluvial pluvial, groundwater and artificial, flood risks have been considered in the FRA, with allowances made for the likely effects of climate change.
- 4.85 According to the EA's Flood Map for Planning, the Site is primarily located within Flood Zones 1 or 2, with small fringe areas within Flood Zone 3, but the whole Site benefits from the presence of flood defences. Therefore, despite being located within an area of medium to high probability of tidal flooding, the Site is protected assuming normal operation of the River Thames' defences. As part of the FRA consultation, the Environment Agency confirmed that the Site is currently protected from overtopping of the defences up to the 1 in 1000 year standard. The FRA also provided an assessment of the risk to the Site arising from failure (breach) of the defences.

- 4.86 Although the probability of a breach event occurring at the same time as a storm surge is extremely small, it is necessary to account for this scenario in the scheme design to ensure that Plot A2 can be occupied safely. In this respect the relevant design levels would remain as existing or higher to ensure that no new flow routes are created that could affect the buildings within Plot A2.
- 4.87 During the excavation works for Plot A2, required to construct the basement, it is anticipated that groundwater would be encountered. This could lead to the ingress of groundwater and potential flooding of excavated areas. Appropriate dewatering and disposal, using standard techniques such as sumps and pumps would likely be required. This would mitigate the risk of groundwater flooding during excavation works.
- 4.88 In respect of groundwater flows, it is not anticipated the basement would significantly displace existing groundwater flows. However, further ground water monitoring is proposed for Plot A2 which would inform the detailed design of the basement construction.
- 4.89 To ensure no groundwater ingress occurs once completed, the basement would be designed to be suitably waterproofed for the lifetime of the Development.
- 4.90 Consideration is also given in the FRA to surface water drainage to ensure the Development does not increase the risk of flooding at off-Site locations. Accordingly, a drainage strategy for the Development has been prepared by Waterman IE.
- 4.91 All surface water from Plot A2 would discharge to Canada Water Dock; this would be unrestricted. Some small localised areas from Plot A2 would be pumped into the wider site-wide surface water drainage system before discharging by gravity to Canada Water Dock, however this would be minimised. Development discharge of surface water to sewers is proposed at 50% of the existing rate as per the London Plan.
- 4.92 As discharge to Canada Water Dock would be unrestricted, no attenuation is required. Design of the outfalls to Canada Water Dock would ensure that no surcharge from the Dock would be possible.

POLLUTION MANAGEMENT

Land Contamination

- 4.93 As indicated in Chapter 11 Ground Conditions and Contamination of the Environmental Impact Assessment, historical potentially contaminative land uses at the Site include the former Harmsworth Quays Printworks, timber yards and timber ponds, various works, factories and infilling of the docks. Existing potential contamination sources are the petrol filling station and vehicle wash area at Surrey Quays Shopping Centre, chemical storage at the former Harmsworth Quays Printworks and electrical substations across the Site.
- 4.94 Furthermore detailed ground investigations would be required across the entire Site to confirm contamination status and the mitigation required. The findings of the ground investigation, along with the assessment made in the overarching Remediation Strategy for the Development (included as part of the Environmental Impact Assessment) would inform a detailed Remediation Strategy for each Plot and would be agreed with the Environment Agency and Southwark Council.
- 4.95 During the construction and demolition works, implementation of a Construction Environmental Management Plan (CEMP) would prescribe routine environmental management control measures to prevent and control all emissions from the Site with the potential to cause environmental effects.
- 4.96 Further details can be found in Chapter 11 Ground Conditions and Contamination of the Environmental Impact Assessment.

Air Pollution

- 4.97 An Air Quality Impact assessment has been carried out for the Development and the results are presented in detail in the ES.

Noise & Vibration

- 4.98 During the construction phase of Plot A2, mitigation measures would be implemented to reduce construction noise and vibration, as appropriate. These measures will be incorporated within a CEMP, which will take into account relevant key guidance documents.
- 4.99 A Suitably Qualified Acoustician has been appointed to provide acoustic design advice. Based on the results of an environmental noise survey undertaken at the site, along with suitable criteria for internal noise levels, the sound insulation requirements have been specified for each façade.
- 4.100 Southwark Council require that the noise level does not exceed 10 dB below the representative background noise level as described in BS4142:2014. The noise assessment indicated that the plant proposed generally would not require acoustic corrections. The noise assessment provided plant noise limits based on the noise surveys undertaken.
- 4.101 The acoustic aspects of the design will be further refined as the design progresses to later, detailed stages.

Light Pollution

- 4.102 External lighting would be designed to direct and concentrate lighting to the appropriate areas, minimising upward lighting and reducing unnecessary light pollution, energy consumption and nuisance to neighbouring properties.
- 4.103 In line with BREEAM requirements, this will be achieved by designing the external lighting strategy in compliance with ILP Guidance notes for the reduction of obtrusive light or other relevant applicable standards and will not compromise the safety of any persons using the building. The lighting proposals would aim to ensure that all external lighting (except for essential, safety and security lighting) will be automatically switched off between 23:00 and 07:00. If safety or security lighting is provided and will be used between 23:00 and 07:00, this part of the lighting system will comply with ILP's Guidance notes. Furthermore, illuminated advertisements, if specified, will be designed in compliance with ILP PLG 05 The Brightness of Illuminated Advertisements.

Water Pollution

- 4.104 The potential pollution effects on controlled waters associated with the Development are presented in detail in Chapter 11 Ground Conditions and Contamination of the Environmental Impact Assessment.

- 4.105 The Chapter indicates that, during construction and demolition, the potential risk to exposed soils and controlled waters would be minimised through the implementation of best practice measures to be included in the CEMP.
- 4.106 Plot A2 is in an area of the Site not underlain by infilled dockland. Therefore, all Made Ground within the footprint of the basement would be removed from the Site, removing a potential source of contamination. The Plot would be covered with structures or hardstanding. Therefore, rainwater infiltration rates to groundwater would not be significant, reducing the potential for any future contamination mobilisation.
- 4.107 The Chapter also suggests that following the implementation of remediation works necessary (these will be defined via detailed Remediation Strategy for each Plot) any residual impacts to groundwater would be minimised.
- 4.108 During the operational phase, any hazardous materials kept on the Site associated with the swimming pool or other uses within Plot A2, would be stored and maintained in accordance with relevant legislation, which aims to reduce contamination risks. Specifically, chlorine donor and pH correction chemicals will be stored in independent chemical stores, located at Level 00 for ease of delivery and sized for one month's storage capacity. Chemical stores will be appropriately ventilated
- 4.109 Whilst accidental spillages cannot be ruled out, the Plot would be drained by hard standing which would prevent the majority of rainwater and surface water runoff infiltrating into the ground. Furthermore, the drainage system would be designed to incorporate drainage solutions such as interceptors, filters or silt traps to avoid the discharge of any fuels or oils. This would be particularly important for the proposed drainage outfalls to Canada Water Dock.
- 4.110 Further details can be found in Chapter 11 Ground Conditions and Contamination of the Environmental Impact Assessment.

SUSTAINABLE DESIGN AND CONSTRUCTION

Designing Inclusive Environments

- 4.111 The principles of inclusive design, including the specific needs of disabled people, have been integrated into the design of Plot A2 through consideration of relevant guidance. Inclusive design has been an integral part of the design philosophy and will continue to inform the design process as it develops.
- 4.112 A Design and Access Statement has been prepared that demonstrates that a good level of inclusive design will be achieved by the finished scheme. The key access provisions for Plot A2 include:
- Provision of accessible, Blue Badge car-parking spaces.
 - Drop-off/pick-up points will be on Deal Porters Way within 90m of the Leisure Centre entrance and the office entrance.
 - Wayfinding features through the public realm.
 - Access to the Leisure Centre via a pedestrianised area (with occasional service vehicle use) to the north of the site.
 - Step free, level or gentle-slopes with gradient less than 1:20 in pedestrian routes.
 - Resting spaces every 50m in the public realm.
 - Slip resistant, even, level walking surfaces.
 - Prominent entrances with automatic or easily openable doorways.
 - A fully accessible leisure centre to meet standards set out in Sport England's best practice Design Guidance Note for Accessible Sports Facilities, 2010.
 - Office development designed in accordance with appropriate Building Regulation Standards including Approved Documents Part M Volume 2 and Part K.
 - Accessible cycle parking will be provided as part of the Bike Hub.
 - Lifts that meet Part M requirements.
 - Toilet facilities for wheelchair users and ambulant disabled people; and
 - A permanent hearing enhancement system at the leisure centre reception.

- 4.113 Further details have been provided in the Design and Access Statement, which is being submitted under a separate cover in support of this planning application.

Secure by Design

- 4.114 Secure by Design principles have been considered and will continue to form part of the design philosophy and inform the design process as it develops.
- 4.115 A Security Needs Assessment (SNA)⁴ has been undertaken based on a site visit for Plot A2 and in line with the relevant BREEAM criteria. The SNA considers three core threat groups namely:
- Crime such as anti-social behaviours, theft and violent Crime and Sexual offences);
 - Public disorder; and
 - Terrorism.
- 4.116 The SNA provided a list of recommendations such as:
- Provision of thick laminated glass.
 - Provision of all external doors with an electronic locking system that can be locked remotely (automated lockdown).
 - Provision of sufficient lighting in the reception and building perimeter.
 - Access to lifts and stair cores after access barriers.
 - Secured entry using a fob to areas such as cycle facilities, each office floor, back of the house areas, loading bay etc.
 - A comprehensive CCTV system to areas including building entrances, loading bay, bike parking, lift lobbies and back of house areas.
 - Further details can be found in the Security Needs Assessment and the relevant sections of the DAS.

⁴ Security Needs Assessment, QCIS, October 2017

Indoor Comfort and Health and Well-being

- 4.117 The design of the building will promote a healthy living environment that will reduce environmental stresses, facilitate physical activity and promote mental well-being, through adequate indoor air quality, daylight penetration, quality views, acoustics and through provision of access to outdoor spaces.
- 4.118 Every floor has access to external amenity space. Habitable 3m deep balconies are located along the entire front of the building facing the dock, providing opportunity for office users to site and enjoy views of the dock and down the high street. At ground level, the balcony zone delineates a sheltered colonnade outside the retail units and entrance hall.
- 4.119 On the top floor of the building, an external terrace 7.5m deep by 24m wide is located on the north-west corner of the main block. A small balcony on each floor, between the main block and the cranked smaller block on the north elevation, allows views and engagement onto the Dock Office courtyard.
- 4.120 A stair is located in a prominent position in the entrance hall, accessed directly from the social space and visible from the entrance and public realm to encourage its use in preference to the lifts.
- 4.121 Visual comfort has actively informed the development of the design of the building. Daylight penetration has been carefully balanced to maximise occupant comfort while limiting solar gains. The double height space of the ground floor for example, allows natural light and views into the lower level and glazed screens between the stair and the sports hall will create views and enhance the feeling of openness and promote intuitive way finding. The folded roof structure also provides opportunity for natural light to the top floor of the office on the north side, and incorporation of solar panels on the south side.
- 4.122 Natural light will be supplemented with energy efficient artificial lighting, specified to appropriate levels and types in line with current best practice guidelines. External lighting will be automatically controlled for prevention of operation during daylight hours and presence of detection in areas of intermittent pedestrian traffic.
- 4.123 A raised planter beneath the stair would contribute a biophilic element to the design. And super graphics could be used as branding or to illustrate the health and wellbeing nature of the space.
- 4.124 To promote internal air quality, mechanical ventilation will be designed to minimise the concentration and recirculation of pollutants in the building, by providing fresh air into the building in accordance with the criteria of the relevant standard for ventilation.
- 4.125 Finally the provision of cycle parking will promote physical activity for building users.
- 4.126 A WELL pre-assessment has been carried out for the building. The WELL Building Standard is designed to promote the health and wellbeing of occupants. The Pre-assessment process confirmed that a Gold level of certification could be targeted with an aspiration for Platinum. The WELL pre-assessment included recommendations made relevant to the features the Project and Client Team could pursue to achieve the Platinum Certification. It also outlined the immediate next steps, roles and responsibilities and risks associated with the process of the WELL Certification.

Sustainable Construction

- 4.127 During the construction phase of Plot A2, a Construction Environmental Management Plan (CEMP) will be developed and will identify designated roles and responsibilities and appropriate control measures. It will also define the activities to be undertaken to minimise environmental impact and monitoring and record-keeping requirements. It is intended that the CEMP will be periodically reviewed and regular environmental audits of its implementation and operation will be undertaken during the construction phase of the Plot.
- 4.128 In addition, the Site will be registered with the Considerate Contractors Scheme (CCS) to ensure that the construction Site is managed in an environmentally and socially considerate, responsible and accountable manner. The Principal Contractor will comply with and exceed, where possible, the minimum requirements of the CCS.
- 4.129 During the construction process, environmental impacts will be monitored including recording and reporting energy use, water consumption and transport data (where measured) resulting from all on-Site construction processes throughout the build programme.

SUSTAINABLE TRANSPORT

- 4.130 Sustainable modes of transport will be promoted through the building design, as well as its favourable location in relation to public transport and accessibility to local amenities.
- 4.131 There will be no car parking provision for staff or visitors within the Plot. Three disabled parking bays will be provided along Deal Porters Way, for use by visitors to the leisure centre.
- 4.132 Plot A2 is well connected by sustainable modes of transport, achieving a Public Transport Accessibility Level (PTAL) rating of 6a. There are a range of public transport services including the Jubilee line and Overground from Canada Water station, in close proximity to Plot A2. Adjacent to the station is a bus interchange serving the local area and wider afield to Central London.
- 4.133 Plot A2 is promoting access by bicycle through the provision of a bike hub in the basement area. The cyclists' entrance will be a set of automatically opening double swing doors.
- 4.134 The cycle parking provision in the bike hub has been designed to meet the London Plan (2016) planning policy standards. This is as follows:

Land Use	Long Stay	Short-Stay
B1 office	270	14
A1/A3 Retail	6	26
D2 Leisure Centre	5	74

- 4.135 Supporting facilities will also be provided in the bike hub including:
- Six showers for both men and women (12 in total) in separate facilities;
 - a wheelchair accessible shower area in each of the communal showering facilities;
 - One locker per long-stay cycle space; and
 - Changing and drying areas.
- 4.136 Local amenities including cafes, restaurants, supermarkets, ATMs are also available within walking and cycling distances.
- 4.137 Pedestrian access points to the office, retail and leisure centre land uses will be as follows, ensuring safe, attractive and easy on foot access to the building:
- The pedestrian access for office staff and visitors will be from Deal Porters Way;
 - The retail unit will also be accessed on foot from Deal Porters Way; and

- The leisure centre pedestrian access will be from the new area of public realm known as the Dock Office Courtyard.

4.138 A Travel Plan is also included in the Transport Assessment. The Travel Plan outlines the commitment to put in place a Travel Plan Co-ordinator prior to first occupation of the development, whose role will be to monitor its implementation. It also contains a package of measures which aims to support the design of the building and encourage the use of the infrastructure provided within the local area.

POOL DESIGN CONSIDERATIONS

4.139 Sustainability considerations relevant to the operation of the pool have been and will continue to inform the design development. The principles that have been informing the design are outlined below. These will continue to be considered as the scheme design progresses, and the financial/ environmental benefits can be further assessed.

- Water treatment system capacity – as the design detail emerges, systems will be correctly designed to achieve the requirements of the brief and compliance with the applicable design standards, but without unnecessary over-capacity.
- Building layout – the spatial relationship between the pool, balance tank and plantroom structures has a significant bearing on energy consumption over the typical design life of a building; this relationship will be developed with the design team to seek the most efficient arrangement possible within set constraints.
- Pump selection and variable speed drives – for maximum circulation efficiency, pumps would need to be carefully selected to operate at the most efficient point on the performance curve; operating at reduced flow rates is most efficiently achieved through the use of variable speed drives.
- System hydraulic design – the main energy consumers on the water treatment systems are the electrical motors that drive the pool water circulating pumps; through careful hydraulic design and specification, system head loss and hence electrical consumption can be significantly reduced.
- Pool surface water removal – the design of the transfer channel system has a significant impact of water turbulence within the channel and hence water (evaporation), heat and chemical losses; the critical channel dimensions will be provided in order to minimise water turbulence.
- Pool system distribution – to minimise system head losses the pool fittings will be designed with greater flow area and lower head loss without jeopardising efficient distribution or compliance with standards.
- Effective control of chemical usage – good distribution combined with close control of the chemical parameters will minimise the chemicals required to maintain the required chemical set points.
- Instrumentation, metering and system flexibility – the ability to accurately monitor the consumption of utilities on a daily basis combined with system flexibility provides the operator with maximum control for maximum efficiency; the level of water treatment should be relative to the bather load.
- Automated control of pool water levels to isolate surface skimming systems when pools are not in use and hence minimise evaporation losses, typically overnight.

5. Conclusion

5.1 This Sustainability Statement has assessed Plot A2 against the standards set out in the SPG Sustainable Design and Construction and Southwark's sustainability objectives, outlined in Southwark's Core Strategy and Managing Development Document. The key beneficial impacts of the scheme in relation to sustainability can be summarised as follows:

- Use of and maximisation of the potential of previously developed land via provision of a mixed-use development, appropriate for the context and site location;
- A building design that makes reference to the historical local context of sheds and warehouses that once occupied Canada Water;
- A building with an improved performance of the building envelope through specification of improved U-values of the thermal elements and controlled fittings, high performance double glazing and improved building air-tightness.
- Maximisation of opportunities to complement the energy use profiles between the uses, by utilising waste heat from the office chillers to meet low grade heat demand in the leisure centre;
- A design that aims to reduce the potential for overheating and the reliance on air conditioning systems. This was achieved by minimising internal heat generation through energy efficient design; reducing the amount of heat entering the building in summer; and use of thermal mass and high ceilings to manage the heat within the building.
- Further improvements to the building's energy performance through on-site electricity generation via the provision of a PV array of approximately 365m² (circa 73 kWp, dependent on the panel's efficiency) to provide renewable electricity in the office and retail landlord areas; and a solar thermal array of 285m² to serve part of the leisure centre's water heating demand requirements. These technologies could be installed on the south facing folds of the roof;
- Overall reduction in CO₂ emissions over a Part L compliant baseline:
 - 35% for office/retail components;
 - 20% for the leisure centre; and
 - 29% for the building overallin line with the London Plan requirements via passive design, energy efficiency and renewable implementation;
- Good practice environmental design, including good daylight, ventilation and acoustics;
- Access to amenity space and views through the provision of balconies and terraces;
- Provision of water efficient sanitary ware and greywater recycling to reduce the potable water demand;
- Responsibly sourced new materials with robust environmental information, where feasible;
- Provision of ecological enhancements through a comprehensive landscape strategy that aims to increase the site biodiversity;
- Provision of a Site that is accessible to all, including the disabled and promotes pedestrian and bicycle access;

- Cyclist provision in the form of a bike hub to accommodate appropriate number of cycle spaces for the proposed occupancy as well as end-of journey facilities to further promote comfortable and safe access to the site by bicycle;
- Maximisation of recycling opportunities through provision of recycling facilities and an easily accessible and adequately sized communal waste storage area;
- Design of a safe and secure development; and
- Adherence to sustainable construction Site management practices including:
 - Signing up to the Considerate Constructors Scheme and going beyond best practice; and
 - Reducing environmental impacts of the construction Site.

5.2 The Sustainability Strategy described in this report sets out the proposed measures and commitments that have been and will continue to be incorporated into the design process and the construction and operation of Plot A2. The objective is to optimise the building's environmental performance and result in a scheme that can be designed, constructed and operated in a sustainable way.

APPENDIX A

Southwark Sustainability Checklist

Southwark Council
Sustainability Checklist
Canada Water Masterplan, Plot A2

Sustainability assessment checklist cover sheet

Site address	BL Canada Water Masterplan, Plot A02		
Description of development			
Type of application	Full	Outline	
Use class(es) proposed	Office	Retail	Leisure Centre
Units/ floorspace (m2) proposed by use class			
Code for Sustainable Homes design stage assessment completed	N/A	Code for Sustainable homes level to be achieved	N/A
BREEAM pre-assessment completed	on going	BREEAM rating to be achieved	Excellent for Office, V Good for Leisure and Retail
Name of assessor		License number of assessor	
The following assessments have also been completed.			
Completed	Environmental Impact Assessment		
Completed	Design and Access Statements		
Completed	Flood Risk Assessment		
	Health Impact Assessment		
	Equalities Impact Assessment		
Completed	Energy Assessment		
Completed	Tree Report		
Completed	Ecology/Biodiversity Report		
Completed	Transport Assessment		
Completed	Green Travel Plan		
At later project stages	Site Waste Management Plan		
Completed	Construction Management Plan		
Completed	Green Travel Plan		
At later project stages	Green Procurement Plan		
N/A	Buildings for Life Assessment		
Completed	Air Quality Assessment		
Completed	Noise Assessment		
Daylight/Sunlight analysis	Other (please specify)		

Sustainability assessment checklist: social sustainability

Sustainability issues	Minimum standard	Preferred standard	Comment
Housing tenure			
Is there a tenure mix that reflects the needs of the local community? Will the proposal promote the creation of mixed communities?	The application meets the minimum requirements set out in Southwark Plan policy 4.4 and Affordable Housing SPD.		Not applicable
Dwelling mix			
Is there an accommodation mix that reflects the needs and aspirations of the local community? Will the proposal provide wheelchair housing?	The application meets the minimum requirements set out in Southwark Plan policy 4.3.	The proposal provides a dwelling mix which fully reflects housing needs in Southwark, including a significant proportion of family sized housing. All dwellings meet wheelchair accessibility standards.	Not applicable
Lifetime homes			
Will the proposed homes meet Lifetime Homes Standards?	All dwellings meet lifetime homes standards.		Not applicable
Amenity space			
Will the proposed homes have a good standard of amenity space, including private amenity space?	All 3 bed houses have access to at least 50sqm of private amenity space; all 3 bed flats have access to at least 10sqm of private amenity space; all 1 and 2 bed flats have access to at least 50sqm of communal amenity space.	All 3 bed houses have access to at least 50sqm of private all dwellings have access to at least 10sqm of private amenity space.	Not applicable
Open space and play facilities			
Will the proposed homes have good access to public open space and play space?	On-site play space is provided in accordance with the Residential Design Standards SPD. If this is not feasible, the development makes a financial contribution in line with s106 SPD. Open spaces have management and maintenance plans in place.		Not applicable
Sustainability issues			
Safety and security			
Will new development be safe and secure?	The development meets Secured by Design principles.	The development will obtain Secured by Design Certification.	Appropriate safety and security principles are currently being considered and will inform the design development process. A security consultant has been appointed (OCIC) for the masterplan to advise on relevant considerations. A Security Needs Assessment (SNA) has been undertaken based on a site visit for Plot A.2 and in line with the relevant BREEAM criteria.
Information and communications technology			
Will proposed dwellings increase access to the internet and promote ICT?		All proposed dwellings have fibre optic termination	Not applicable
Pre-application consultation			
Has the local community been consulted at pre-application stage?		Consultation has been carried out with the local community and other stakeholders at pre-application stage.	A comprehensive community consultation programme has been carried out. A specialist community engagement consultant has been appointed.
Parking for people with disabilities			
Will the proposal provide adequate and convenient parking for people with disabilities?	Will the proposal provide adequate and convenient parking for people with disabilities?		Three car parking spaces for disabled users are proposed external to the building and within a short distance of the main entrances.
Accessibility			
Will people with disabilities, parents with pushchairs, the elderly and infirm find it easy to move around the development?			The principles of inclusive design, including the specific needs of disabled people, will be integrated into the design through consideration of relevant guidance. Inclusive design has been an integral part of the design philosophy and will continue to inform the design process as it develops. A Design and Access Statement has been prepared and submitted alongside the planning application where further details can be found.
Transport impacts			
How will the development avoid and mitigate any negative transport impacts?	The proposal is located in an appropriate location for its size and trip-generating characteristics. Any harmful transport impacts are mitigated, including through preparing a green travel plan and site specific s106 planning obligations.		A Transport Assessment has been carried out and submitted in support of the planning application, to analyse the impacts of the proposals to trip generation and available public transport capacity. The proposals will promote sustainable modes of transport as there is limited car parking provision and the users would be anticipated to reach the building via the available public transport modes. Safe and secure cycle facilities will be provided as well as 'end-of-journey' facilities to encourage the use of cycles. A travel plan will be developed to contain a package of measures to encourage the use of the infrastructure provided within the local area.

**Southwark Council
Sustainability Checklist
Canada Water Masterplan, Plot A2**

Sustainability issues	Minimum standard	Preferred standard	Comment
Minimising car use			
How will the proposal discourage car use and encourage people to use sustainable modes of transport, such as walking and cycling and public transport?	The proposal provides the minimum number of car parking spaces needed to ensure that the development can operate successfully, in accordance with the Sustainable Transport SPD. The proposal makes a contribution towards strategic transport improvements in line with the s106 Planning Obligations SPD. The proposal provides a green travel plan which promotes sustainable travel in accordance with the Sustainable Transport SPD.		The proposals include no on-site car parking spaces. As such it is expected that the users would reach the building via walking, cycling or available public transport modes. A travel plan will be developed to provide users with the necessary information to take advantage of sustainable modes of transport. Cyclist parking and end-of-journey facilities will be provided, including showers and changing spaces, to help promote cycling. A Transport Assessment has been carried out and will be submitted in support of the planning application where further details will be provided.
Cycling			
How will the proposal make good provision for cyclists?	There is provision of convenient, secure and weatherproof cycle parking to the minimum cycle parking standards set out in Southwark Plan Appendix 15 and the Sustainable Transport SPD. This includes providing showers and lockers.	The proposal provides a significantly greater amount of convenient, secure and weatherproof cycle parking spaces than the minimum. The proposal creates or contributes towards more direct, safe and secure cycling routes.	Plot A2 is promoting access by bicycle through the provision of a bike hub in the basement area. There are two dedicated cyclists' entrances on each side of the building from the north-west and south east. The cyclists' entrance will be a set of automatically opening double swing doors. The cycle parking provision in the bike hub has been designed to meet the London Plan (2016) planning
Health and well-being			
How will the proposal contribute to the health and well-being of the local community and overcome health inequalities?	The proposal makes the minimum financial contribution towards health as set out in the S106 Planning Obligations SPD.	The proposal directly improves access to high quality health and social care for the local community.	A leisure centre with swimming pool facilities is currently being proposed and will form part of the building. The provision of this space will significantly contribute to the health and well-being of the community offering opportunities for exercise and active living, or encouraging healthy life choices.
Sustainability issues			
Community facilities			
How will the proposal contribute towards meeting the local needs for community space?	The proposal will not create a deficiency in access to community facilities. The proposal makes the minimum financial contribution towards community facilities as set out in the S106 Planning Obligations SPD.	The proposal directly improves access to high quality community facilities for a range of users.	The proposals currently include the provision of a leisure centre which is currently anticipated that would be developed and operated via an agreement with Southwark.
High quality living and working environments			
Will the proposed dwellings have good standards of daylight and sunlight?	The application meets the daylight and sunlight requirements set out in the Residential Design SPD.	The application meets the daylight and sunlight requirements set out in the Residential Design SPD.	Not applicable
How will the development affect the sunlight/daylight of existing neighbouring occupiers?	The application meets the BRE recommended standards for daylight and sunlight access.		A sunlight and daylight analysis has been undertaken by GIA to help ensure the development of a design proposal that meets the BRE recommended standards for daylight. The assessments of daylight and sunlight availability show that the site has the potential to provide acceptable levels of daylight and sunlight amenity in most areas. A number of areas are expected to achieve part compliance with the suggested minima however more detailed assessments will be undertaken as the design progresses in order to ascertain compliance with guidance.
How has the impact from sources of noise been minimised through site layout and landscaping? Will all proposed buildings have good sound insulation?	The minimum standards in the Sustainable Design and Construction SPD are met.	The preferred standards in the Sustainable Design and Construction SPD are met.	A baseline noise and vibration survey has been carried out by Waterman to help specify the levels which the buildings should achieve. A noise impact assessment has been undertaken for the Plot to assess the noise impacts associated with the proposals, identify any concerns and propose mitigation measures, where relevant.
How will proposed commercial or non-residential development help promote the health and well-being of future occupiers?		The development achieves at least 55% of the credits available in the health and well-being section of the appropriate BREEAM assessment	A BREEAM pre-assessment will be undertaken to demonstrate if the preferred standard can be met. The proposals as a whole do intend to contribute to the health and well-being of users through the provision of an indoor environment that is healthy, reduces environmental stresses, facilitates physical activity and promotes mental well-being. Health and well-being has been an integral part of the development proposals from day-one. As such, the building has been designed to allow for optimum daylight, as well as thermal comfort. Ventilation and acoustics have been designed in accordance with best practice.
Are internal layouts flexible and capable of adaptation and multiple uses during their lifetime?			The type of places people are looking for to live, work, and visit are changing and as such the design philosophy must retain the ability to change the strategy along with people's needs. This means that masterplan, public space framework, and buildings must all be robust, efficient, and flexible. A functional adaptability assessment has been carried out, within the context of BREEAM for the office use, to help identify and promote flexible layouts and features that can allow the space to adapt to future needs of the users.
Adapting to climate change			
How will the indoor comfort of users be maintained in a changing climate?	The minimum standards in the Sustainable Design and Construction SPD are met.	The preferred standards in the Sustainable Design and Construction SPD are met.	A thermal comfort study would be undertaken to ensure that appropriate thermal comfort levels are achieved through design, and controls are selected to maintain a thermally comfortable environment for occupants within the building.

**Southwark Council
Sustainability Checklist
Canada Water Masterplan, Plot A2**

Sustainability issues	Minimum standard	Preferred standard	Comment
Nuisance			
How will the proposal minimise nuisance and inconvenience during the construction process?	The proposal meets the minimum construction management standards in the Sustainable Design and Construction SPD.	The developer signs up to the Considerate Contractors Scheme.	During the construction phase, measures will be implemented to minimise environmental impact, whilst ensuring that the Site is optimally managed and the utmost consideration is given to the impact on neighbours and the public. The Considerate Contractors Scheme (CCS) will be used throughout the construction to assist in achieving this. A Construction Environmental Management Plan (CEMP) will be proposed within the EIA to manage environmental issues during construction. This will include the designation of roles and responsibilities, details as to the control measures and activities to be undertaken to minimise environmental impact, and monitoring and record-keeping requirements throughout the various construction phases. There will be commitments in the CEMP to undertake further baseline monitoring as appropriate (e.g. for dust) and monitoring during the works. Measures will be set out in the EIA to minimise nuisance and associated environmental effects.
Urban design and architecture			
Is the proposal of high quality architecture? How does the proposal relate to buildings and spaces around the development site? How does it contribute to the character and distinctiveness of the area?	A Design and Access Statement is submitted which meets the minimum requirements set out in Design and Access Statements SPD	The design and access statement addresses shows that both the minimum requirements and best practice set out in the Design and Access Statements SPD has been met.	A Design and Access Statement has been prepared that demonstrates how the architectural design process, currently at Stage 2, will meet the masterplan vision to create buildings and public amenity of outstanding design quality which reinforces opportunities for interaction and sense of community.
The historic environment			
How will the proposal preserve or enhance the historic environment?	The proposal will not harm the historic environment, and meets Southwark Plan policies 3.15 - 3.19.	The proposal will enhance the historic environment, including repair, renovate or refurbish a listed building currently at risk.	Robert Tavorn have undertaken a built heritage assessment. No works are proposed to the listed building in Plot A (Dock offices) and construction methods will consider the impacts on the building. Consideration will be given to the effects on the setting of the listed building in the EIA. MOLA are also assessing the impacts of the development on archaeology.
Sustainability assessment checklist: economic sustainability			
Sustainability issues			
Employment			
How will the proposal help reduce the skills gap and improve employment opportunities for Southwark residents?	There is no loss in the number of jobs provided on the site (unless an exception is allowed by Southwark Plan policies). Contributions made towards employment, training and education as set out in the s106 Planning Obligations SPD.	The development increases the number and range of jobs available and exceeds the minimum contributions in the s106 Planning Obligations SPD, such as contributing to childcare facilities, providing a work placement or a mentoring agreement with local schools, and/or programmes to engage social housing tenants with employment and skills support.	The proposal will provide office, retail and leisure centre uses and it is therefore anticipated that they would contribute to improving employment opportunities in the area.
Enterprise			
How will the proposal impact on local businesses? How will the proposal encourage the growth of small and medium sized enterprises (SMEs) and an entrepreneurial culture?	There is not a net loss of business floorspace or small business units (unless an exception is allowed by Southwark Plan policies).	The proposal improves the amount and range of good quality business floorspace, including affordable/ flexible business space suitable for SMEs and start up businesses. The development provides additional benefits for businesses. This could include the provision of business advice and support to local businesses, relocation assistance for existing businesses, and a commitment to procure goods and services during the construction phase of development.	The provision of retail floor on the ground floor presents an opportunity to contribute to the growth of small and medium sized enterprises. Each part of the project will be commercially sensible.
Sustainability issues			
How will the proposal support regeneration and wealth creation through the arts, culture and tourism? How will the impacts of tourism be carefully managed?	Development meets the requirements of Southwark Plan Policy 1.11. Visitor generating schemes provide and implement a visitor management strategy.	In addition to the minimum standards, the development helps support local arts, culture and tourism activity, including the provision of accessible and affordable studio and exhibition space.	Not applicable
Sustainability assessment checklist: environmental sustainability			
Sustainability issues			
Using land efficiently			
Will the proposal use land efficiently and in a way which is compatible with the local context?	The proposal is on brownfield land. The density of the proposal is in line with the densities set out in Southwark Plan policies 3.11 and 4.1 and the proposal meets the criteria of policy 3.11.		The current design proposals seek to take advantage of the site configuration and level changes to allow an efficient design that places each use in its most appropriate location with regard to accessibility, functionality, natural light, and footfall. In line with the Mayor's Priorities as set out in the Sustainable Design and Construction SPD and the London Plan, the proposals will be delivered on previously developed land. Overall the proposals on Plot A.2 maximise the potential of the site, while considering the local context through the provision of a mixed use commercial scheme, consisting of office and retail space and the leisure centre. The design approach references historical sheds and warehouses that once occupied Canada Water, making a direct reference to
Open space and green infrastructure			
How will the proposal contribute to Southwark's network of green spaces, particularly in those areas which are currently deficient?	There is not net loss of publicly accessible open space. The proposal complies with Southwark Plan policies 3.25, 3.26 and 3.27 protecting open spaces. The proposal makes a s106 contribution towards open spaces in line with the s106 planning obligations SPD.	There is a net gain of public open space. The proposal directly improves access to a range of quality public open spaces and/or makes a direct contribution to improving green links and corridors.	Open space is proposed throughout the Masterplan, particularly a green link, linking Southwark Park to Russia Dock Woodland. Ecological enhancements will be included throughout the development, such as green and brown roofs, bird and bat boxes. A range of other measures have been proposed and are still under discussion. Plot A.2 has been designed to maximise urban greening, where possible, taking full advantage of opportunities to introduce soft landscape. Inhabited 3m balconies are proposed on the facade facing the docks, while a series of planted terraces and window planter boxes to the rear of the building would also help mitigate overlooking issues for residents of Hothfield Place. A Suitable Qualified Ecologist (SQE) has been appointed to further review opportunities for ecological enhancements and advice on increasing the ecological value of Site through working closely with the landscape architect on the selection of plant species at more detailed design stage.
Biodiversity			
How will the development contribute to nature conservation and biodiversity?	The proposal meets the minimum biodiversity standards set out in the Sustainable Design and Construction SPD.	The proposal meets the preferred biodiversity standards set out in the Sustainable Design and Construction SPD.	As above

**Southwark Council
Sustainability Checklist
Canada Water Masterplan, Plot A2**

Land contamination			
Will the proposal remediate any contaminated land on the application site?	Any contaminated land on the site will be remediated to an acceptable level.		historical potentially contaminative land uses at the Site include the former Hamsworth Quays Printworks, timber yards and timber ponds, various works, factories and infilling of the docks. Existing potential contamination sources are the petrol filling station and vehicle wash area at Surrey Quays Shopping Centre, chemical storage at the former Hamsworth Quays Printworks and electrical substations across the Site. Further and more detailed ground investigations would be required across the entire Site to confirm contamination status and the mitigation required. The findings of the ground investigation, along with the assessment made in the overarching Remediation Strategy for the Development (included as part of the Environmental Impact Assessment) would inform a detailed Remediation Strategy for each Plot and would be agreed with the Environment Agency and
Artificial lighting			
Has artificial lighting been designed and selected to reduce light pollution and nuisance, including reflection into the night sky?	External lighting meets the minimum standards set out in the Sustainable Design and Construction SPD.		The Proposed Development will aim to deliver an external lighting scheme appropriate for the building that would direct and concentrate lighting to the appropriate areas. Where feasible, upward lighting would be minimised, reducing unnecessary light pollution, energy consumption and nuisance to neighbouring properties.
Sustainability issues	Minimum standard	Preferred standard	Comment
How will the design of the proposed development minimise the use of energy?	The proposal meets the minimum energy efficiency standards in the Sustainable Design and Construction SPD or an area based plan.	The proposal meets the preferred energy efficiency standards in the Sustainable Design and Construction SPD or an area based plan.	An energy strategy has been developed to be submitted in support of the planning application. The strategy will be developed in line with the Mayor's Energy Hierarchy and as such passive design and energy efficiency measures will be promoted and
Clean source of energy			
Will the proposal be supplied by a clean and efficient source of energy?	The proposal meets the minimum energy supply standards in the Sustainable Design and Construction SPD or an area based plan.	The proposal meets the preferred energy supply standards in the Sustainable Design and Construction SPD or an area based plan.	It is currently anticipated that a CHP is not the preferred solution for the proposals. The energy strategy provides further information and detail on this. To ensure future proofing of the building, basement plant-space has also been allowed for a Plate Heat Exchanger for potential connection to an off-site Energy Centre, should that become available in the future.
Renewable energy			
Will the proposal use on-site renewable technologies?	The proposal meets the minimum renewable energy standards in the Sustainable Design and Construction SPD or an area based plan.	The proposal meets the preferred renewable energy standards in the Sustainable Design and Construction SPD or an area based plan.	on-site electricity generation via the provision a PV array of approximately 365m ² (circa 73 kWp, dependent on the panel's efficiency) to provide renewable electricity in the office and retail landlord areas; and a solar thermal array of 285m ² to serve part of the leisure centre's water heating demand requirements. These technologies could be installed on
Reducing greenhouse gas emissions			
How will the proposed development minimise the greenhouse gas emissions generated?	The proposal meets the minimum CO2 reduction target in the Sustainable Design and Construction SPD or an area based plan.	The proposal meets the preferred CO2 reduction target in the Sustainable Design and Construction SPD or an area based plan.	The proposals intend to reduce the CO2 emissions associated with the building via the application of passive design, energy efficiency and renewable technologies. The quantification of the reductions achieved is presented in detail in the Energy Strategy.
Water			
How will the proposal minimise water consumption and reliance on mains water?	The proposal meets the minimum water use standards in the Sustainable Design and Construction SPD or an area based plan.	The proposal meets the preferred water use target in the Sustainable Design and Construction SPD or an area based plan.	The proposals will aim to minimise internal potable water consumption through water efficient sanitary fittings such as WCs, urinals and taps. Greywater recycling will also be specified. In addition, water meters will be fitted to encourage the reduction of water consumption by allowing metering, managing and monitoring of water usage.
How will the proposal avoid and reduce water pollution?	The proposal meets the minimum water quality standards in the Sustainable Design and Construction SPD.		During the construction phase, mitigation measures will be developed and detailed in the CEMP, and may include the production of an emergency spillage action plan, designating areas for washing and cleaning of equipment and surrounding the proposed drainage with appropriate granular bedding materials. Additionally, appropriate Sustainable Urban Drainage Systems (SuDs) will be implemented to manage and attenuate runoff. Once the Proposed Development is complete and operational, typical sources of pollution may include oil leaks and petrol spillages from loading/unloading areas, which may cause polluted runoff from the Site and the discharge of foul water from sanitary facilities. The use of chemicals on landscaped areas, such as herbicides and pesticides, may provide an additional source of contamination to run-off. Provided that standard mitigation measures are applied, no significant effects to water resources are expected to occur from these sources.
Waste and resources			
How will the proposal minimise the materials needed in construction and the amount of demolition, excavation and construction waste sent to landfill?	The proposal meets the minimum construction waste standards as set out in the Sustainable Design and Construction SPD.	The proposal meets the preferred construction waste standards as set out in the Sustainable Design and Construction SPD.	A Resource Management Plan (RMP) will be developed for the proposed scheme to identify the waste arising from the development with the aim of minimising waste while recording and reporting accurate data on waste arising. Where possible, materials needed for the construction process will be obtained firstly from re-use and recycling schemes before seeking fresh material, and throughout the design and construction phases of the Proposed Development emphasis will be on pre-assembly and pre-fabrication of elements, wherever practicable, to minimise on-site waste and improve quality.
Sustainability issues	Minimum standard	Preferred standard	Comment

APPENDIX B

BREEAM pre-assessment

Canada Water Plot A2

BREEAM New Construction 2014 Pre-Assessment

British Land PLC

19 December 2017

Quality information

Revision History

Revision	Revision date	Details	Name	Position
0	12 July2017	Draft Issue	Dave Cheshire	Regional Director
1	20 December 2017	Final Planning Issue	Vivien Fairlamb	Associate Director

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1. Introduction

AECOM has been commissioned by British Land to undertake a BREEAM NC 2014 Pre-Assessment for Canada Water Plot A2 in the London Borough of Southwark. This report provides BREEAM pre-assessments that have been undertaken for offices, retail and leisure centre components of the development in line with the local policy (core strategy) and British Land’s Sustainability brief.

2. BREEAM Assessment Methodology

The BREEAM methodology covers the following environmental performance categories:

BREEAM Issues

	<p>Management: Project brief and Design, Life cycle cost and Service life planning, Responsible construction practices, Commissioning and handover, Aftercare;</p>		<p>Health and Wellbeing: Visual comfort, Indoor air quality, Thermal comfort, Acoustic performance, Safety and security;</p>
	<p>Energy: Reduction of energy use and carbon, Energy monitoring, External lighting, Low carbon design, Energy efficient transportation systems, Energy efficient equipment</p>		<p>Transport: Public transport accessibility, Proximity to amenities, Cyclist facilities, Maximum car parking capacity, Travel Plan;</p>
	<p>Water: Water consumption, Water monitoring, Water leak detection, Water efficient equipment;</p>		<p>Materials: Life cycle impacts, Hard landscaping and boundary protection, Responsible sourcing of materials, Insulation, Designing for durability and resilience, Material efficiency;</p>
	<p>Waste: Construction site waste management, Recycled aggregates, Operational waste, Speculative floor finishes, Adaptation to climate change, Functional Adaptability;</p>		<p>Ecology: Site selection, Ecological value of site and protection of ecological features, Minimising impact on existing site ecology, Enhancing site ecology, Long term impact on biodiversity;</p>
	<p>Pollution: Impact of refrigerants, NOx emissions, Surface water run-off, Reduction of night time light pollution, Reduction of noise pollution;</p>		<p>Innovation: Responsible construction practices, Aftercare, Visual comfort, Indoor air quality, Reduction of energy use and carbon emissions, Water consumption, Life cycle impacts, Responsible sourcing of materials, Construction site waste management, Recycled Aggregates, Adaptation to climate change and ‘Approved’ Innovation credits.</p>

BREEAM Rating System

BREEAM is a third party verified sustainability rating system – indicated by percentage benchmarks that assesses the overall sustainability performance of new construction projects. A construction project can achieve a BREEAM rating from 'Pass' to 'Outstanding' depending on the extent to which it has achieved BREEAM standards as shown in [Table 1](#) below. It must be noted that to achieve each BREEAM rating, a set of minimum standards must be achieved.

Table 1: BREEAM ratings and their respective scores

BREEAM Rating	% Score
UNCLASSIFIED	<30
PASS	≥30
GOOD	≥45
VERY GOOD	≥55
EXCELLENT	≥70
OUTSTANDING	≥85

BREEAM UK New Construction 2014 assessment types

Within the UK New Construction scheme a number of assessment types are defined and can be used to assess and rate a new buildings performance as stated below:

- Fully fitted
- Shell and Core
- Shell only

Non-fitted out 'speculative' new buildings are often referred to as Shell and Core buildings. A Shell only or Shell and Core building project is defined as one where the developer's scope of works is the design and construction of the base building only, leaving a range of construction and fit-out works to be completed before the building is able to be occupied. This may include some or all of the following elements: the structure, building envelope, core building systems including building servicing strategy and installations (such as HVAC) or plant support for installation of such systems and where present, fit-out of common areas. A 'Category A' standard building usually falls within the scope of Shell and Core.

Minimum Standards

The BREEAM methodology sets minimum standards of performance in key areas, to ensure that performance against fundamental environmental issues is not over-looked in pursuit of a particular rating. Table 2, below, shows these and identifies the minimum requirements to achieve the different BREEAM ratings.:

Table 2: BREEAM NC 2014 Minimum Standards by rating level

BREEAM issue	Minimum standards by BREEAM rating level				
	Pass	Good	Very Good	Excellent	Outstanding
Man 03: Responsible construction practices	--	--	--	1 Credit (Considerate construction)	2 Credits (Considerate construction)
Man 04: Commissioning and handover	--	--	--	Criterion 10 (Building User Guide)	Criterion 10 (Building User Guide)
Man 05: Aftercare	--	--	--	1 Credit (Seasonal commissioning)	1 Credit (Seasonal commissioning)
Ene 01: Reduction of energy use and carbon emissions	--	--	--	5 Credits	8 Credits
Ene 02: Energy monitoring	--	--	1 Credit (First sub-metering credit)	1 Credit (First sub-metering credit)	1 Credit (First sub-metering credit)
Wat 01: Water consumption	--	1 Credit	1 Credit	1 Credit	2 Credits
Wat 02: Water monitoring	--	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only
Mat 03: Responsible sourcing of materials	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only	Criterion 1 only
Wst 01: Construction waste management	--	--	--	--	1 Credit
Wst 03: Operational waste	--	--	--	1 Credit	1 Credit
LE 03: Minimizing impact on existing site ecology	--	--	1 Credit	1 Credit	1 Credit

3. BREEAM Registrations and Preliminary Results

BREEAM Registration

All BREEAM assessments must be registered with BRE under a specific version of the BREEAM scheme. In multi-use buildings, each major use is typically assessed separately. All uses within Plot A.2 have been registered with BRE under the BREEAM New Construction (NC) 2014 scheme with the following details:

Table 3 BREEAM Registrations

Assessment	Office	Leisure Centre	Retail
Assessment type	Offices	Other	Retail
Scope	Shell and Core	Fully fitted	Shell only
Registration Number	BREEAM-0067-5397	BREEAM-0067-5488	BREEAM-0067-5462

Preliminary results

This section presents the findings of the Preliminary BREEAM NC 2014 pre-assessment of the Plot A.2. All information and assumptions contained in this report have been based on information provided by the design team at the Pre-Assessment meeting, held on June 29th, 2017 with the client and design team or through review and correspondence.

Table 4 indicates the BREEAM level for each of the uses in relation to the scoring threshold levels as prescribed within the assessment methodology and Figure 1, Figure 3 and Figure 2 (overleaf) illustrate performance of each use against various BREEAM categories.

Table 4 Preliminary Results

Assessment	Office	Retail	Leisure Centre
Targeted score	73.40%	57.40%	58.50%
Minimum Score required	70.00%	55.00%	55.00%
Target BREEAM Rating	Excellent	Very Good	Very Good

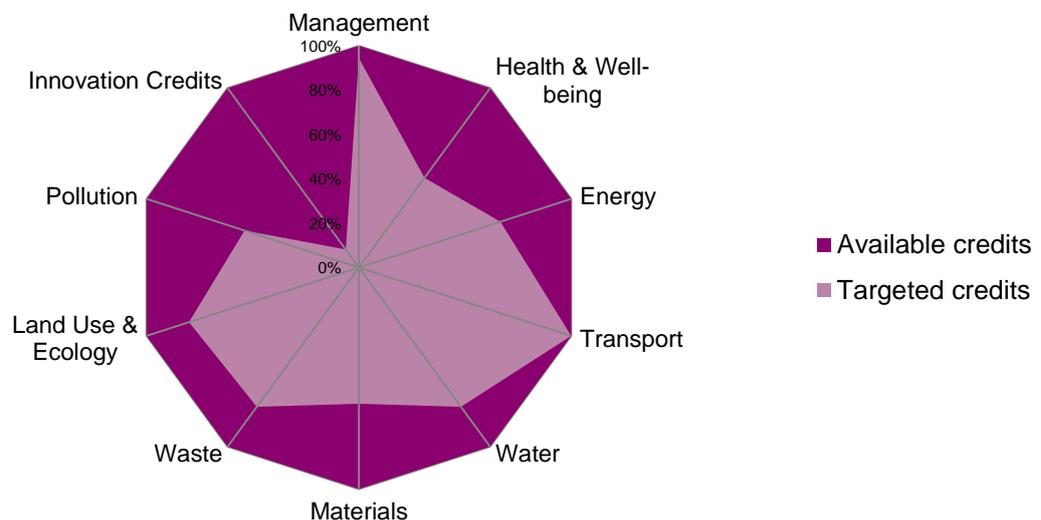


Figure 1 BREEAM Performance: Offices

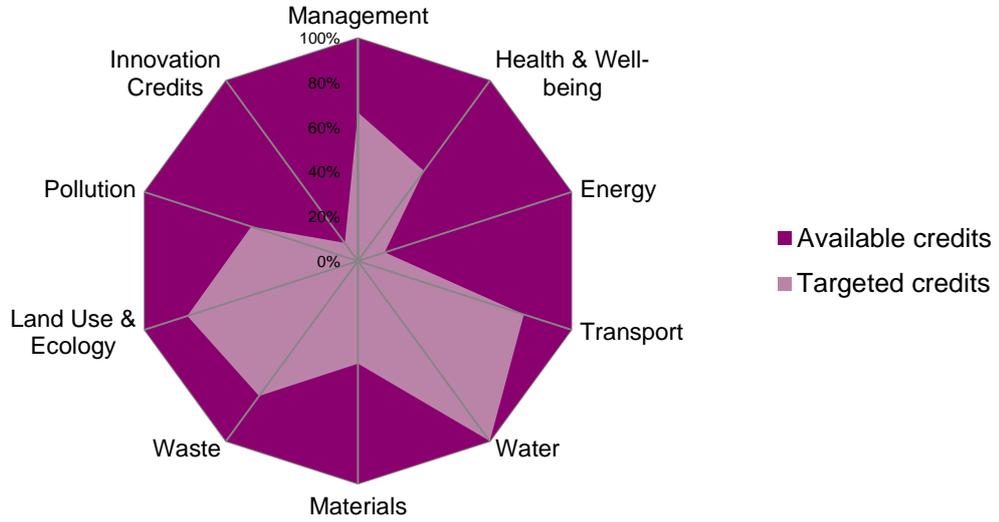


Figure 2 BREEAM Performance: Retail

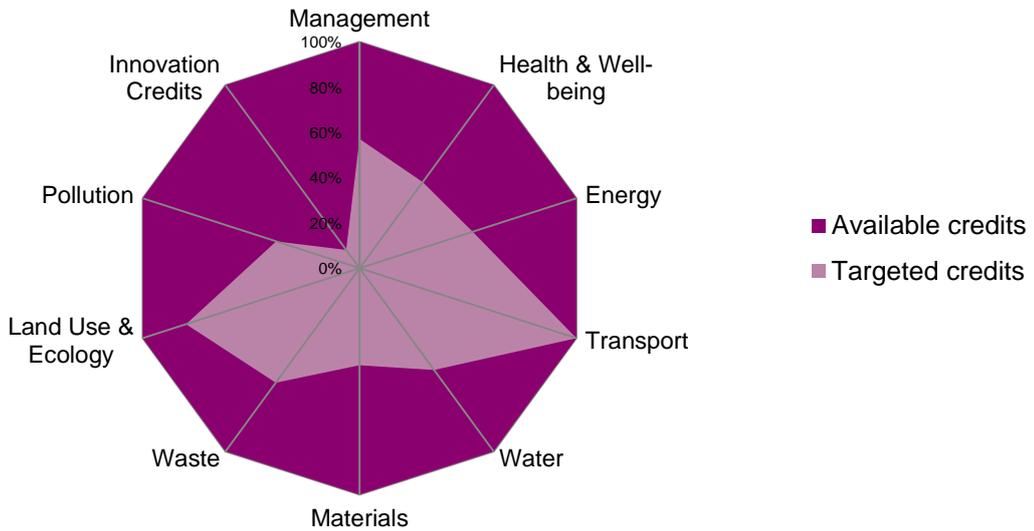


Figure 3 BREEAM Performance: Leisure Centre

4. BREEAM Pre-Assessment Tracker

Credit Name	Available Credits	Targeted Credits		
		Office	Leisure centre	Retail
Targeted Score	110%	73.40%	58.50%	57.40%
Management				
Man 1: Project Brief and Design				
Stakeholder Consultation (Project Delivery)	1	1	0	1
Stakeholder Consultation (Third Party)	1	1	0	0
Sustainability Champion (Design)	1	1	1	1
Sustainability Champion (Monitoring Progress)	1	1	1	1
Man 2: Life Cycle Cost & Service Life Planning				
Elemental Life Cycle Cost (LCC)	2	2	0	0
Component Level LCC Plan	1	1	0	0
Capital Cost Reporting	1	0	0	0
Man 3: Responsible Construction Practices				
Pre-Requisite: Timber	Y	Y	Y	Y
Environmental Management	1	1	1	1
Sustainability Champion	1	1	1	1
Considerate Construction (1 Cr Mandatory for Excellent)	2	2	2	2
Monitoring of Construction-site Impacts	2	2	2	2
Man4: Commissioning and Handover				
Commissioning and Testing Schedule and Responsibilities	1	1	1	N/A
Commissioning Building Services	1	1	1	N/A
Testing and inspecting building fabric	1	1	0	1
Handover (1 Cr Mandatory for Excellent)	1	1	1	N/A
Man 5: Aftercare				
Part A: Aftercare Support	1	N/A	0	N/A
Part B: Seasonal Commissioning (1 Cr Mandatory for Excellent)	1	N/A	1	N/A

Credit Name	Available Credits	Targeted Credits		
		Office	Leisure centre	Retail
Part C: Post Occupancy Evaluation	1	N/A	0	N/A
Health & Wellbeing				
Hea 1: Visual Comfort				
Glare control	1	N/A	1	N/A
Daylighting	3	0	0	0
View Out	2	0	0	0
Internal and External Lighting	1	1	1	1
Hea 2: Indoor Air Quality				
Ventilation	1	0	0	N/A
Adaptability - Potential for Natural Ventilation	1	0	0	0
Indoor Air Quality (IAQ) plan	1	N/A	1	N/A
Volatile Organic Compounds (VOC)	2	N/A	0	N/A
Hea 4: Thermal Comfort				
Thermal Modelling	1	1	0	N/A
Adaptability - for a projected climate change scenario.	1	0	0	N/A
Thermal Zoning and Controls	1	N/A	0	N/A
Hea 5: Acoustic Performance				
Acoustic Performance	1 (Offices and Retail) 3 (Leisure Centre)	1	3	1
Hea 6: Safety & Security				
Safe Access	1	1	1	1
Security of Site and Building	1	1	1	1

Energy				
Ene 1: Reduction of Energy Use and Carbon Emissions				
Energy Performance (5 Cr Mandatory for Excellent)	15	7	5	0
Ene 2: Energy Monitoring				
Part A: Sub-metering of Major Energy Consumption Systems (Mandatory for Very Good)	1	1	1	N/A

Credit Name	Available Credits	Targeted Credits		
		Office	Leisure centre	Retail
and Excellent)				
Part B: Sub-metering of High Energy Load and Tenancy Areas	1	1	1	N/A
Ene 3: External lighting				
External lighting	1	1	1	1
Ene 4: Low Carbon Designs				
Passive Design Analysis	1	0	0	0
Free cooling	1	0	0	0
Low and zero carbon technologies	1	1	1	1
Ene 6: Energy Efficient Transportation Systems				
Energy Consumption	1	1	1	N/A
Energy Efficient Features	2	2	2	N/A
Ene 8: Energy Efficient Equipment				
Energy Efficient Equipment	3	N/A	0	N/A

Transport				
Tra 1: Public Transport Accessibility				
Accessibility Index	3 (Office) 5 (Leisure Centre, Retail)	3	5	5
Tra 2: Proximity to Amenities				
Proximity to Amenities	1	1	1	1
Tra 3: Cyclist Facilities				
Cycle Storage	1	1	1	0
Cyclist Facilities	1	1	1	0
Tra 4: Maximum car parking capacity				
Maximum car parking capacity	2	2	2	N/A
Tra 5: Travel Plan				
Travel Plan	1	1	1	1
Water				
Wat 1: Water Consumption				
Water Consumption (1 Cr Mandatory for Very Good and Excellent)	5	3	2	N/A
Wat 2: Water Monitoring				

Credit Name	Available Credits	Targeted Credits		
		Office	Leisure centre	Retail
Water Monitoring <i>(Mandatory for Very Good and Excellent)</i>	1	1	1	1
Wat 3: Water Leak Detection & Prevention				
Leak detection system	1	1	1	1
Flow Control Devices	1	1	1	N/A
Wat 4: Water Efficient Equipment				
Water Efficient Equipment	1	1	0	1
Materials				
Mat 1: Life Cycle Impacts				
Life Cycle Impacts	6	2	1	0
Mat 2: Hard Landscaping and boundary protection				
Hard Landscaping and boundary protection	1	1	1	1
Mat 3: Responsible Sourcing of Materials				
Pre-Requisite: Timber	Y	Y	Y	Y
Sustainable Procurement Plan	1	1	1	1
Responsible Sourcing of Materials	3	1	0	1
Mat 4: Insulation				
Embodied Energy	1	1	1	1
Mat 5: Designing for Durability and Resilience				
Designing for Durability and Resilience	1	1	1	1
Mat 6: Material Efficiency				
Material Efficiency	1	1	1	1

Waste				
Wst 1: Construction Waste Management				
Resource Efficiency	3	2	1	2
Diversion of Waste from Landfill	1	1	1	1
Wst 2: Recycled aggregates				
Recycled aggregates	1	0	0	0
Wst 3: Operational Waste				
Operational Waste <i>(Mandatory for Excellent)</i>	1	1	1	0
Wst 4: Speculative floor finishes				
Speculative floor finishes	1	1	N/A	N/A
Wst 5: Adaptation to Climate Change				

Credit Name	Available Credits	Targeted Credits		
		Office	Leisure centre	Retail
Structural and Fabric Resilience	1	1	1	1
Wst 6: Functional Adaptability				
Functional Adaptability	1	1	1	1
Land Use & Ecology				
LE 1: Site Selection				
Previously occupied land	1	1	1	1
Contaminated land	1	0	0	0
Ecological value of site	1	1	1	1
Protection of Ecological Features	1	0	0	0
Change in ecological value (Mandatory for Very Good and Excellent)	2	2	2	2
LE 4: Enhancing Site Ecology				
Ecologists Report and Recommendations	1	1	1	1
Increase in ecological value	1	1	1	1
LE 5: Long Term Impact on Biodiversity				
Long Term Impact on Biodiversity	2	2	2	2
Pollution				
Pol 1: Impact of Refrigerants				
Pre-requisite	Y	Y	Y	N/A
Impact of Refrigerant	2	0	0	N/A
Leak Detection	1	1	0	N/A
Pol 2:NOx Emissions				
NOx Emissions	3	1	0	N/A
Pol 3: Surface water run-off				
Flood Resilience	2	2	2	2
Surface Water Run-Off	2	1	1	1
Minimising Water Course Pollution	1	0	0	0
Pol 4: Reduction of Night-time Light Pollution				
Reduction of Night-time Light Pollution	1	1	1	0
Pol 5: Reduction of Noise Pollution				
Reduction of Noise Pollution	1	1	1	N/A

Credit Name	Available Credits	Targeted Credits		
		Office	Leisure centre	Retail
Innovation Credits - Max. 10 credits can be targeted				
Man 3: Responsible Construction Practices	1	1	1	1
Man 5: Aftercare	1	N/A	0	N/A
Hea 1: Visual Comfort	1	0	0	0
Hea 2: Indoor Air Quality	2	N/A	0	N/A
Ene 1: Reduction of Energy Use and Carbon Emissions	5	0	0	N/A
Wat 1: Water Consumption	1	0	0	N/A
Mat 1: Life Cycle Impacts	3	0	0	0
Mat 3: Responsible Sourcing of Materials	1	0	0	0
Wst 1: Construction Site Waste Management	1	0	0	0
Wst 2: Recycled Aggregates	1	0	0	0
Wst 5: Adaptation to Climate Change	1	N/A	0	N/A
Approved innovations	Up to 10	0	0	0

For further information please contact

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