

Upper Brook Street Masterplan Williams / Alliance UBS Limited Circular Economy Statement, PBSA

About Us



Established for 20 years, Carbon.Climate.Certified (formerly GWP Project Services) have grown into a leading UK based Sustainability Consultant, working on multiple award winning schemes in the UK and overseas. Specialising in environmental analysis and reporting we work closely with internationally renowned Architects, designers & contractors on highly efficient, low impact modern buildings that aim to significantly reduce carbon emissions and building related costs during design, construction and operation.

Our international client base includes some of the world's most successful organisations and the UK's most established institutions such as Kings College London, Jaguar Land Rover, Price Waterhouse Cooper, Bacardi Martini and DHL.

Our knowledge, experience and contribution to Environmental Design, Built Form Sustainability and Carbon Reduction has been recognised with the award of BREEAM Assessor of the Year in 2013 & 2015, being a major contributor to their assessor network and providing internal consultancy to the BRE Global organisation and input into the development of current and future BREEAM methods.

We offer a proactive approach to the challenges faced with Environmental Assessment and have developed systems and protocols specifically within the BREEAM / WELL / HQM markets to assist in the complex task of assessing and delivering certified buildings. We work very closely with the design and construction teams to ensure communication and organisation is adopted from the outset, informing the supply chain so opportunities are maximised where feasible.

Author & Assessor Details

This report has been produced by Jade Moore, a Consultant at Carbon.Climate.Certified who has over 5 years experience working directly within the field of Architecture. Jade's Architecture BA(hons) and Master of Architecture degree have provided her with the transferable skills required to interpret complex information such as construction documentation. This knowledge has been applied to her sustainability role as Carbon Consultant where she has completed Whole Life Carbon and Life Cycle assessments, as well as working with project teams to develop and deliver targets in sustainability and circular economy.

The report has been checked and authorised by Shauna Buckley, Associate Director of Carbon.Climate.Certified who has over 6 years experience in sustainability consultancy and is a qualified and licensed BREEAM assessor, accredited professional and WELL accredited professional. Shauna has also worked directly in the field of Whole Life Carbon assessments and is a suitably qualified waste champion in accordance with BREEAM and WRAP requirements.

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01

Executive Summary

1.1 Executive Summary



This Circular Economy Statement has been prepared on behalf of Williams Motor Co (Holdings) and Alliance UBS Limited (the “Applicant”) as part of a Full Planning Application to Manchester City Council (the “Council”) for the Purpose Built Student Accommodation, Upper Brook Street, Manchester, (the “Site”). The proposed description of development is: The Site extends to 2.13 hectares and is bounded by Upper Brook Street (UBS), Grosvenor Street and Kincardine Road with Inchley Road running through the centre. The site comprises the various former Williams Garage buildings and their associated car parking forecourts. These buildings are now vacant and are formed around the Grade II* listed ‘Former Unitarian Chapel’ (sits outside of the site boundary) which now operates as student accommodation.

The Site is identified for redevelopment within the Oxford Road Corridor Strategic Regeneration Framework Guidance (SRFG) with mixed commercial uses, purpose built student accommodation, and high-density development identified as being a priority for the UBS site.

The Proposed Development forms one element of the wider Upper Brook Street Illustrative Masterplan which can be seen within the submitted Supporting Planning Statement.

The wider illustrative masterplan proposals are being brought forward collaboratively by Property Alliance Group, Moda Living, McLaren Property and Kadans Science Partner. The illustrative masterplan intends to transform the currently vacant sites, re-establishing their important role in the area by re-introducing permeability, public realm, and active community-facing uses at ground floor. The emerging masterplan includes almost 3 acres of new public realm and green spaces, two new public squares, as well as a series of high-quality new buildings of varying heights to provide for c.700,000ft² of sci-tech/life sciences uses, over 1,800 purpose-built student accommodation beds, and c. 25,000ft² of active ground floor uses.

The existing land uses surrounding the site are as follows:

- To the north lays a car park sited adjacent to the Mancunian Way Ring Road. Beyond this, the Ring Road overlooks Princess Street which comprises buildings forming part of the University of Manchester (the John Garside Building and the George Begg Building) which range from 3-15 storeys in height.
- To the east of the Site is Kincardine Road; beyond which the predominant use is 2-storey residential dwellings that form a part of the wider Brunswick Estate. The Brunswick Estate is an area currently undergoing extensive urban regeneration. This direction also comprises a Salvation Army building, the Sheung Lok Wellbeing Centre and Gartside Gardens.
- To the south of the Site lays a temporary paid car park (formerly in use as a Citroën car dealership) alongside the former Elizabeth Yarwood Court residential complex. This land is also identified for redevelopment in the Oxford Road Corridor SRFG and forms Phase One of the Upper Brook Street Masterplan.
- To the west of the Site is UBS, on the opposite side of which is the University of Manchester’s Main Campus, which includes the National Graphene Institute, the Manchester Engineering Campus and the Sir Henry Royce Institute, with buildings ranging from 4-storeys to 10-storeys in height.

The proposed buildings will provide 1,100 student bedrooms (55% studios and 45% clusters in buildings A1 and A2 and 100% clusters in building A3 with circa 20% affordable), student amenities, commercial/ community spaces and supporting ancillary areas. The proposed PBSA scheme is arranged in three building blocks with buildings A1 and A2 linked on the ground floor to form spaces for student amenities and building A3 is separated by the proposed public square. The buildings step down in height in a north-south direction comprising ground +41/14/12.



This Circular Economy Statement discusses the works undertaken by the client and the design team to define a strategic approach to Circular Economy principles for the project and identify high level strategic opportunities early in the development process.

This Circular Economy Strategy responds to Local Planning Policy including the Manchester Core Strategy (2012), the Greater Manchester Joint Waste Development Plan (2012) and the Places for Everyone Joint Development Plan document . The document also responds to guidance put forward by the 'UKGBC Circular Economy guidance for construction clients: How to practically apply circular economy principals at the project brief stage, 2019. It also incorporates strategies informed by the GLA in the Publication London Plan (2022). This statement also makes reference to The Ellen Macarthur Foundation circular design toolkit which was used to lead the Circular Design Strategy workshops that have informed this report.

Key Stakeholders

Key project team members which have incorporated design measures which outline the circular economy approach for the project are as follows:

Client	Architect	MEP	Cost Consultant	Civil & Structural Engineer
Williams Motor Co (Holdings) and Alliance UBS Limited	Simpsonhaugh	Ridge & Partners	Abacus	EDGE

Summary of Potential Commitments

- Opportunities for off-site prefabrication and design for modularisation are being promoted by the client, explored by the design team, and will be maximised where possible.
- Developing a design and construction specification that maximises energy and resource efficiency
- Specification of recycled content within hotspot materials where viable.
- Design for longevity; specification of materials which are durable and resilient
- Designing for flexibility and future adaptability to ensure the design can meet current and future needs. Where possible, building layers will be accessible to allow for alterations, replacements and eventual disassembly.

A full list of strategic approaches and commitments can be found within section 4 of this report.



02

Introduction

2.1 Project Overview



Full planning permission for the demolition of existing buildings and erection of three ground floor + 12/14/41 storey buildings to be used for Purpose Built Student Accommodation (Use Sui Generis), comprising 1,100 bedrooms in total and 506sqm of ground floor ancillary uses (café/ commercial and convenience store - Use Classes E (a)/(b)/(c)), three buildings comprising ground floor + 5/7/9 storeys for Science and Innovation uses (Use Class E (g)(i) & (ii)) and 834sq.m ground floor community uses (retail/café and medical facility (Use Classes E (a/b) and (e) and the provision of new public realm, two new public squares, new access and parking, and associated works to be on Phase Two of the Upper Brook Street Masterplan.

The proposed buildings will provide 1,100 student bedrooms (55% studios and 45% clusters in buildings A1 and A2 and 100% clusters in building A3 with circa 20% affordable), student amenities, commercial/ community spaces and supporting ancillary areas. The proposed PBSA scheme is arranged in three building blocks with buildings A1 and A2 linked on the ground floor to form spaces for student amenities and building A3 is separated by the proposed public square. The buildings step down in height in a north-south direction comprising ground +41/14/12.



Figure 1 - Upper Brook Street PBSA, Visuals

2.2 Policies & Guidance



2.2.1 Local Planning Policy

This Circular Economy Statement responds to the following Local Planning Policy Frameworks:

Places for Everyone Joint Development Plan

Emerging Policy

The Draft 'Places for Everyone' (PFE) Plan is a new long-term plan of nine Greater Manchester districts (Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside, Trafford and Wigan) for jobs, new homes, and sustainable growth. It has been prepared by the GMCA on behalf of these nine districts.

The Draft Plan will determine the kind of development that takes place across the city-region, maximising the use of brownfield land and urban spaces while protecting green belt land from the risk of unplanned development. It will also ensure all new developments are sustainably integrated into Greater Manchester's transport network or supported by new infrastructure.

On 1st March 2022, the Secretary of State appointed three planning inspectors to conduct an independent examination of the Places for Everyone Joint Development Plan Document. The document has been subject to examination and on 31st May 2023, the main modifications were agreed. It is therefore considered that the Plan is in an advanced stage of preparation.

One of the Plan's ambitious targets is to create a circular and zero waste economy through its Policy JP – 7 Resource Efficiency, which calls for:

- *Using sustainable design and construction techniques to reduce carbon emissions, adapt and future proof to the impact of climate change, reduce and recycle waste and minimise water use.*

A Zero Waste Strategy is also currently in development and will expand upon the measures needed to comply against to demonstrate evidence of circular economy and zero waste principles.

A final policy of note within the Draft Places for Everyone Development Plan, Policy GM-S 2 Carbon and Energy, will prescribe developments to include a carbon assessment to demonstrate how the design and layout of the development sought to maximise reductions in whole life CO₂ equivalent carbon emissions.

Manchester Core Strategy

July 2012

Manchester's Core Strategy was adopted on 11th July 2012. The strategy sets out the long term strategic policies for Manchester's future development and will form the framework that planning applications will be assessed against.

Although there is no specific policy on Circular Economy within the Core Strategy, the following policies have been reviewed to ensure that the intent behind the principles of circular economy, namely resource conservation and climate change mitigation, have been captured within the design of the development.

These policies, that have been considered relevant for the purpose of developing this statement are:

- *Policy EN4 – Reducing CO₂ Emissions by Enabling Low and Zero Carbon Development calls for the use of sustainable building materials with low embedded carbon*
- *Policy EN19 – Waste calls for proposals to demonstrate their alignment with the Waste Hierarchy principles. In addition, the policy requires the provision of sustainable waste management measures that promote a close-loop system.*

Greater Manchester Joint Waste Development Plan

2012

The Plan's objective is for the movement of waste up the waste hierarchy in order to maximise the diversion of waste from landfills.

In addition, the Plan recognises the need to adapt to climate change through measures that seek to improve energy efficiency and reduce carbon dioxide (CO₂) emissions.

2.2.2 Policies & Guidance

In addition to the Local Planning Policy Frameworks, the statement responds to the guidance provided by the following publications:

GLA Circular Economy Statement Guidance

March 2022

The guidance document explains how to prepare a Circular Economy Statement to accompany strategic planning applications referred to the Mayor of London.

It aims to help ensure that all referable developments '*Consider strategies to facilitate the transition towards a circular built environment, report against numerical targets that will facilitate monitoring of waste and recycling, and recognise opportunities to benefit from greater efficiencies that can save resources, materials, and money*'.

UKGBC System Enablers for a Circular Economy

January 2023

System Enablers for a Circular Economy highlights systemic barriers and the policy and market based solutions to enable the built environment industry to shift from a linear to a circular system. It identifies eight enablers that will encourage the shift from our current linear economic system; building a foundation upon which a circular economy across the built environment can become the default way of operating as we transition to net zero.

The toolkit highlights how all level of government, industry and civil society will need to champion a common goal to shift from the current linear economy to a circular one and offers many of the solutions needed to deliver this - most of which exist in today's market and can be implemented immediately.

The Ellen Macarthur Foundation

Circular Design Guide

The Ellen Macarthur Foundation circular economy design toolkit has taken the 3 principles of circular design and translated them into a prioritised set of strategies and actions relevant to the building industry.

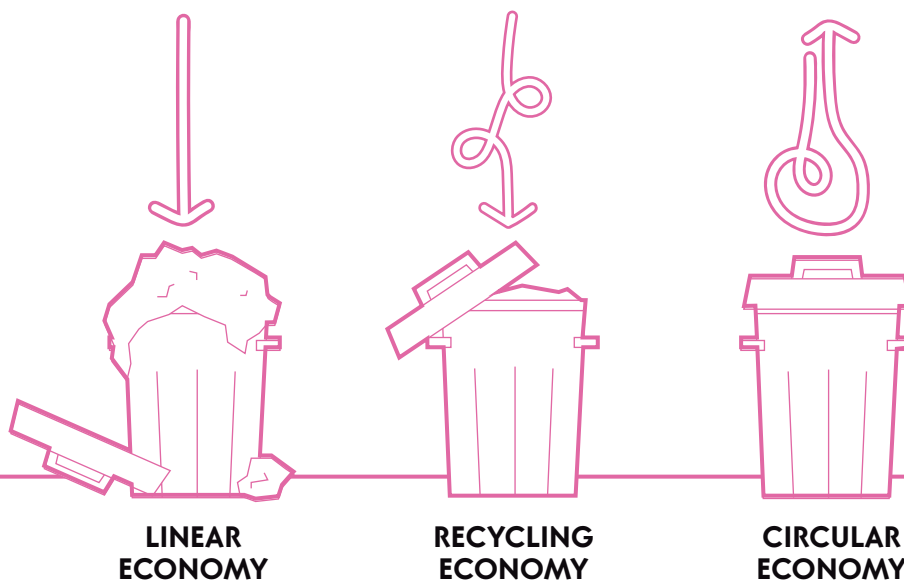
The toolkit highlights how building design and operation can utilise the principles through a high level framework of '*build nothing, build for long term value, build efficiently and build with the right materials*'. This framework is translated into detailed actions to be applied to new construction projects.

UKGBC Circular Economy Guidance

April 2019

The UKGBC Circular Economy Guidance provides a comprehensive framework addressing the commercial realities associated with applying circular principles to a design brief.

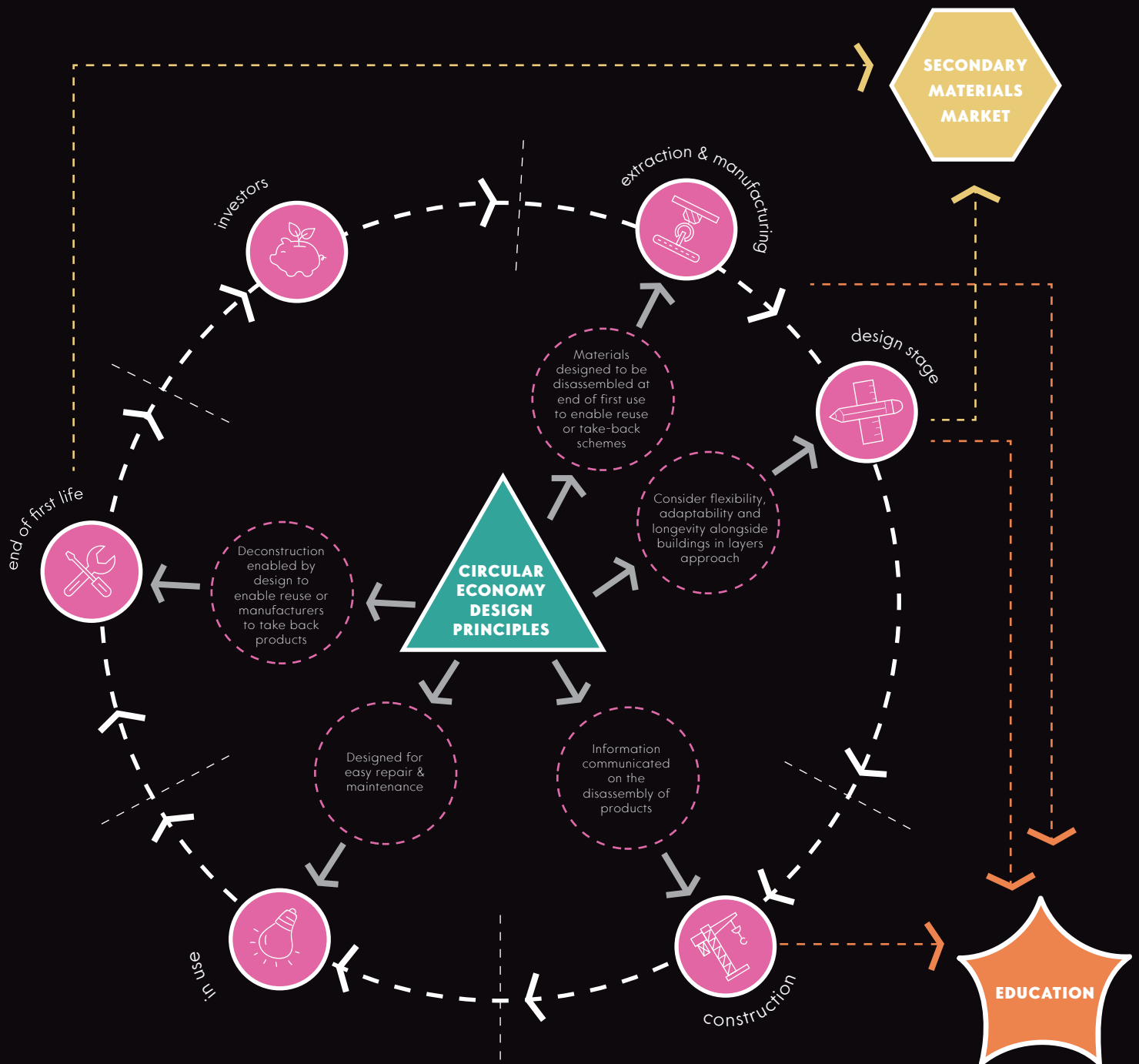
It provides support and evidence to assist in clear target and strategy setting that ensures budget, project timescales and risks are all minimised and mitigated. The guidance focuses on RIBA Work Stages 1& 2 but champions the idea that for circular principles to be successful, a whole building life cycle approach is required.





03

Circular Economy **Design Principles**



"An architecture characterised by reversible connections, allowing buildings and components to be taken apart in a way that allows for future reuse or lengthens the building's life by being flexible and adaptable."

Figure 2 - UKGBC System enablers for a circular economy - January 2023

3.1 Circular Economy Design Principles

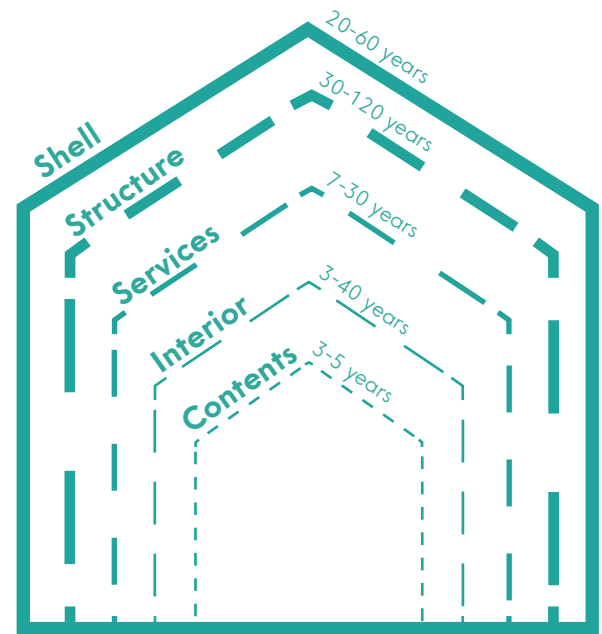


3.1.1 CE Design Principles

Circular Economy (CE) is typically defined as a closed-loop system where resources are retained for as long as possible and re-used and recycled continuously so that there is minimal or zero waste sent to landfill.

Often the by-product of one material becomes the raw material for another activity, so that there is a reduced demand for additional resource inputs, and as a result a smaller carbon footprint. It is envisaged that the emerging Places for Everyone Plan in Manchester will seek to follow the same pathway, especially given the city's aspirations for becoming zero carbon by 2038.

A Circular Economy differs significantly from a linear one, where often resources are used inefficiently and are sent to landfill, or when resources are recycled but eventually still end up in landfill. The GLA have established Circular Economy Principles and Commitments which are considered fundamental to the building design process. The principals listed are considered relevant and accurate as of the end of Stage 2 design. It is anticipated that these may change as the design progresses and therefore will need to be confirmed by the design team during detailed design and ultimately by the contractor as appropriate.



P01

Building in layers

to ensure that parts of the building are accessible and can be maintained and replaced

01.1

Identify the core Circular Economy principles within each building layer

Design out Waste

to ensure that waste reduction is planned from project inception to completion

P02

- Design out construction, demolition, excavation and municipal waste arising 02.1
- Manage demolition waste 02.2
- Manage excavation waste 02.3
- Manage construction waste 02.4
- Manage municipal waste 02.5

Design for Longevity

Meet the fundamental long term requirements for building design

P03

03.1

Design for Adaptability

Specify how the development is intentionally designed so that adaptation for future use is feasible

P04

04.1

Design for Disassembly

Specify how materials are joined together and how they are layered in a way that is accessible, reversible and robust

P05

05.1

Using systems, elements or materials that can be reused and recycled

- Specify and source materials and other resources responsibly and sustainably 06.1
- Specify and source materials that are reused or have a high recycled content 06.2

P06

3.1.2 The Waste Hierarchy

The Department for Environment, Food and Rural Affairs (DEFRA) provides guidance on applying the waste hierarchy for any kind of business or development that generates, handles or treats waste.

The Waste Hierarchy is a tool that ranks waste management options (top to bottom) from what is the best option for the environment (prevention) to the least preferred option (landfill disposal). The principles of the waste hierarchy, along with the 6 established circular economy principles were used to steer the Circular Economy design workshop held by the design team..

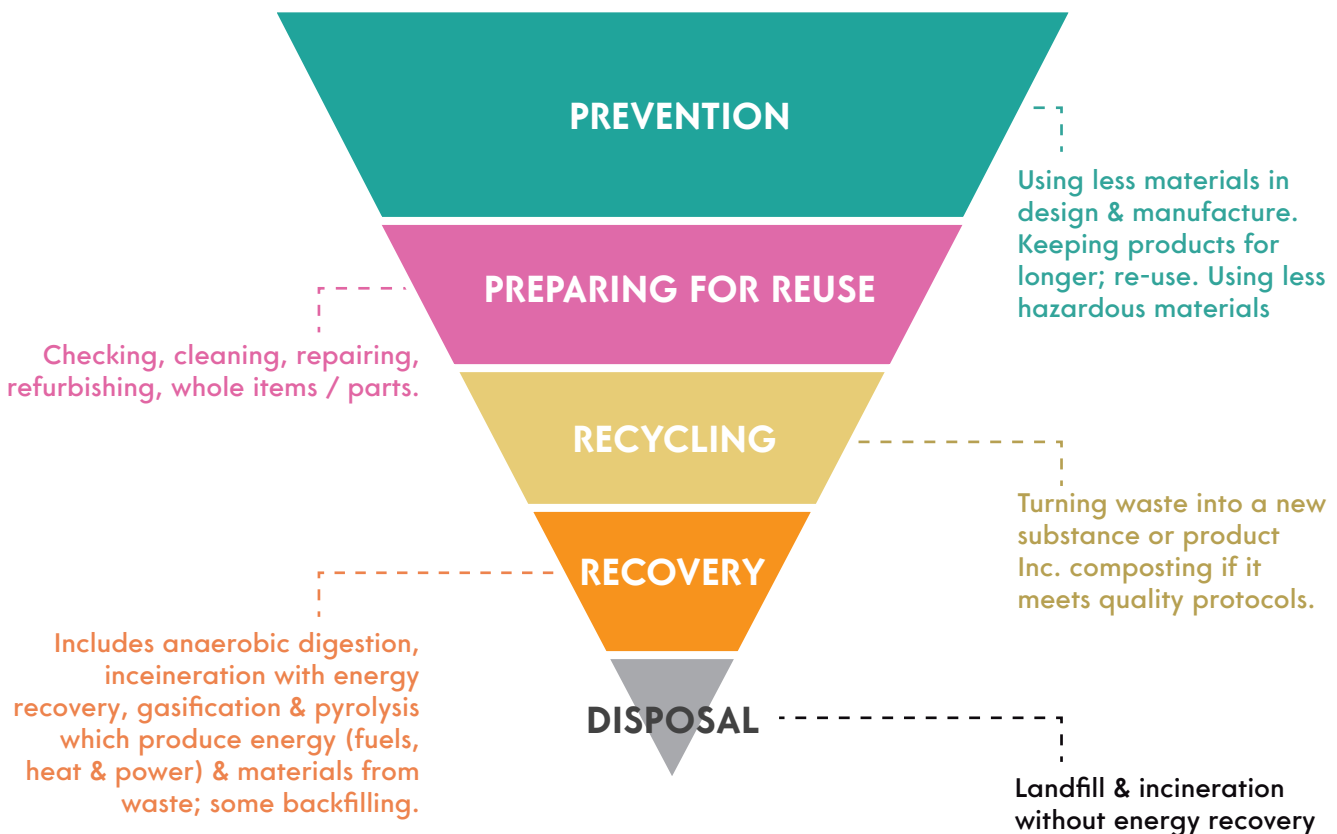


Figure 3 - DEFRA Waste Hierarchy Model

3.1.3 Mayor of London Circular Economy Guidance

The London Plan 2021, through its policy *S1 17 Reducing Waste and Supporting the Circular Economy*, requires all new developments to submit a Circular Economy Statement in their planning applications on a bid to transition to zero carbon city by 2030. To support this requirement, a guidance document (currently in draft) has been developed to help developers outline their circular economy commitments as well as structure their circular economy statements for planning approval.

Whilst the Upper Brook Street PBSA scheme is not located within the Greater London area, the guidance set out within this document is currently the industry best practice relating to circular economy and as such will be used to inform the circular economy commitments for this development.

3.1.4 Strategic Approach



Circular Economy considerations have formed a key part of the projects sustainability strategy.

The applicant understands that the exploration of high level strategic opportunities at the earliest stage will allow the design team to implement Circular Economy principles and the Building in Layers most effectively.

The appropriate design approach for new buildings and infrastructure has been informed by the decision tree in figure 4. It outlines a strategy whereby all developments should be designed so that buildings can be adapted to extend their life. They should also be designed so they can be deconstructed and reconstructed to allow components and materials to be salvaged for reuse or recycling, whilst maintaining their economic and environmental value.

Seven CE design approaches are identified within figure 4. For each approach, the decision tree has been applied for each aspect of the proposal.

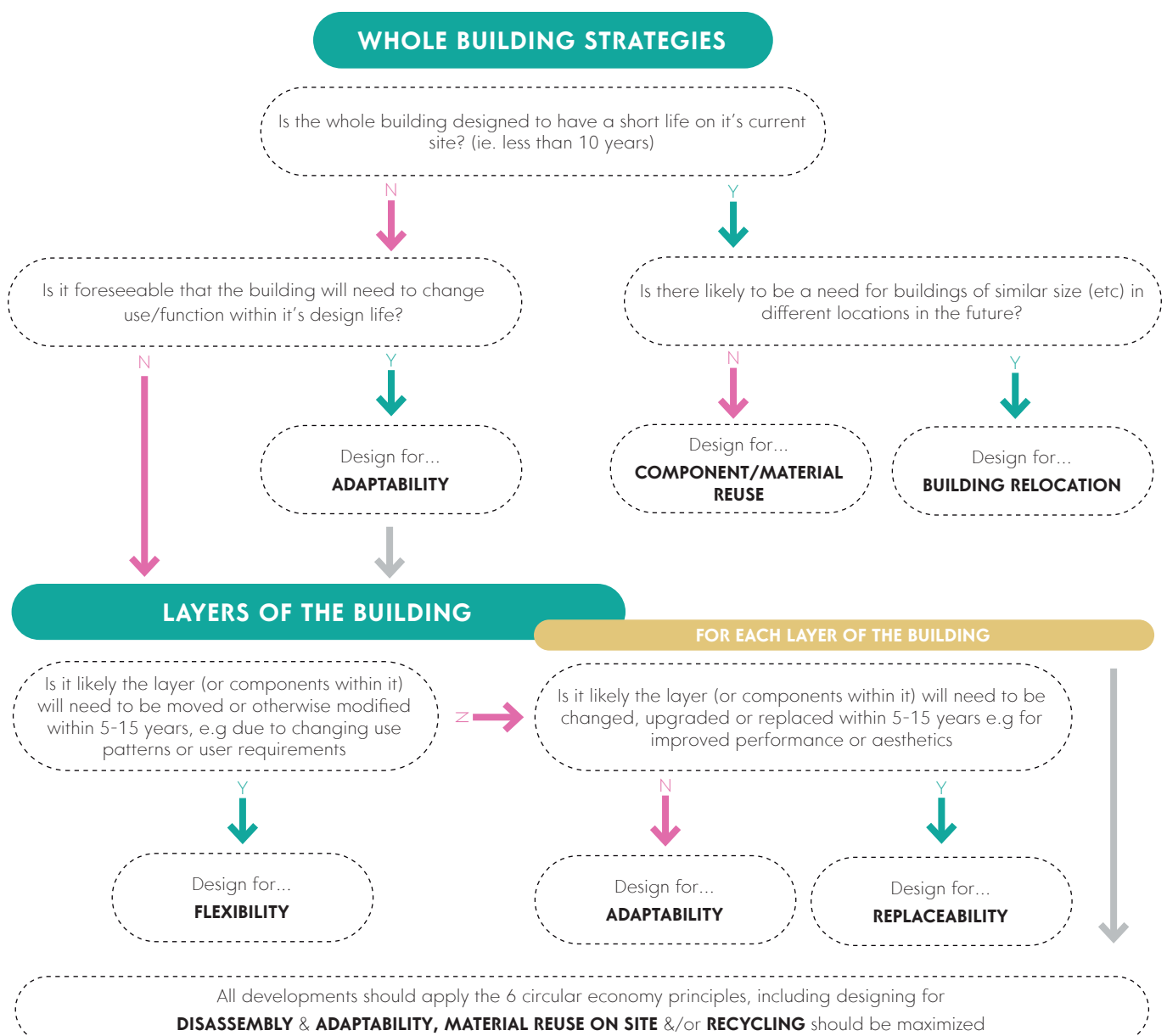


Figure 4 - Decision tree for new developments

3.2 Method Statement

3.2.1 Circular Economy Workshop

A meeting / workshop was held with the team to review the requirements of the Circular Economy Policy and Guidance. Sustainable development objectives have been incorporated from Stage 1 as part of the Client Brief, and the team have worked collaboratively to ensure principles of circularity are incorporated into the project.

A BREEAM Pre-Assessment has been developed by Carbon.Climate.Certified; credits such as Material Efficiency, Design for Disassembly and Adaptability, Adaptation to Climate Change have all been targeted. The principals of these credits have been discussed with the team at length during focused BREEAM workshops (with specific reference to Circular Economy) to ensure the relevant principals are incorporated and reflected in the design strategy. A Whole Life Cycle Carbon Assessment is also being carried out with the aim of reducing the embodied carbon of materials and elements.

Through the continued involvement of Carbon.Climate.Certified as the appointed ESG champion, the principles and objectives of the circular economy will be incorporated into reporting requirements and processes going forward through the RIBA stages.

Core Principles

Minimise Resource Consumption

- Minimise the quantities of materials used
- Minimising the quantities of other resources
- Specifying and source materials and other resources responsibly and sustainably

Eliminate waste

- Minimise waste in construction by designing for longevity, adaptability, or flexibility and reusability or recoverability
- Reduce waste & consumption of other resources by designing for efficiency

Design for End of Life

- Design for adaptation / disassembly & deconstruction
- Specify products for recycle / reuse to avoid unnecessary waste going to landfill





04

Project Commitments

4.1 Project Aspirations

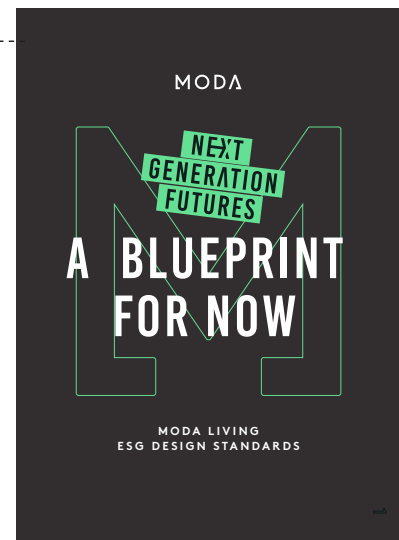


The applicant has appointed Carbon.Climate.Certified to produce this Circular Economy statement in line with their ESG Design Standards. The targets and deliverables outlined within this document form part of the wider sustainability strategy, setting aspirations and goals for design teams and stakeholders to strive towards.

The ESG Design Standards have informed the project aspirations, along with more in-depth workshops where design principles and considerations into how these may be included within the design have been explored. These measures will be explored further as the project progresses.

Early Stage Documentation

Early stage documentation has also been developed, informed by MODA's ESG Design Standards and project specific aspirations. A Whole Life Carbon Assessment, Options Appraisals and a Life Cycle Assessment have been carried out from the earliest stages of the project. The results of these reports have assisted in establishing the contents of this report.



CE Principle	Reference	MODA Design Standard
P01 P02 P03	DA.01	Environmental Certifications Achieve a BREEAM Excellent Certification
P01 P02 P03 P06	C.03	NZC: Operational & Embodied Carbon Conduct optioneering of low carbon strategies
P01 P02 P03 P04 P05 P06	C.04	Embodied Carbon Analysis & Targets < 500 kg CO ₂ e/m ² Upfront Embodied Carbon < 800 kg CO ₂ e/m ² Whole Life Embodied Carbon
P01 P02 P03 P04 P05 P06	R.01	Circular Economy Statement Produce a Circular Economy Statement prior to primary sign off as a result of the Circular Economy Design Workshop
P04 P05 P06	R.02	Design for End of Life A minimum of 30% (by volume or weight) of components can be easily separated on disassembly/deconstruction
P02 P06	R.03	Waste Through Construction Produce a Site Waste Management Plan to include reduce/reuse/recycle targets < 6.5T/100m ² of construction waste > 80% of waste diverted from landfill
P02	R.04	Water Consumption Design and specify equipment to reduce water use, increase water efficiency and achieve a rate of < 110litres/person/day
P01 P04 P05	FA.01	Building Adaptability Guide Produce a building adaptability and disassembly guide
P02 P03 P06	SE.03	Responsible Construction Register the project with the Considerate Contractors Scheme and commit to a minimum score of 40
P06	SE.06	Supply Chain Engagement A Sustainable Procurement Plan will be in place before primary sign off

4.2 Project Commitments



The key Circular Economy policies, guidance and key principles have been applied to the following project commitments. The following section outlines the key commitments and how they will be implemented within the project, including key targets and deliverables.

4.2.1 Minimise Resource Consumption

During the early design stages, the project team committed to delivering a sustainable and resource efficient development. The following measures have been specified to help deliver a scheme that will prioritise reducing material demand and minimising quantities used in line with the waste hierarchy:

- Excavated material (such as soil and sub structural elements) from construction and demolition works will be used, where practical, for landscaping purposes and within the public realm;
- The structural design of the towers and podium have been optimised to reduce the quantity of concrete used on site;
- Robust materials such as permeable paving, block paving and stone will be utilised for hard landscaping therefore, minimising the frequency of replacement and maximising materials optimisation and extending replacement intervals;
- Where possible, pre-cast concrete and post tensioning will be used to minimise the amount of concrete used during construction; and,
- The demolition of a single storey derelict industrial building within the site boundary will be required for the development. A pre-demolition audit will inform where existing materials from the derelict building will be reused to reduce the demand for new materials during construction.

4.2.2 Minimise the use of other resources

The below section provides an appraisal of the specific approach, design features and specifications which will contribute to reducing the demand for various resources. Key specifications, site characteristics and design measures of the proposed development are considered below. These will help to reduce the demand for the quantity of non-material resources throughout the development's operational life cycle.

Reduced Demand for Energy

The energy strategy for the proposed development looks at a number of improvements in the building fabric, as well as the installation of energy efficient systems that will contribute to the reduced demand for energy.

The following measures have been specified:

- High performance thermal insulation;
- Low air permeability;
- Heat recovery ventilation systems (MVHR);
- High efficiency electric panel heaters;
- Sophisticated heating controls; and,
- 100% low energy and/or LED internal lighting.

The Energy Hierarchy

The Energy Hierarchy has been used as a framework to guide this energy strategy to achieve practical and cost-effective carbon emission reductions. It is intended that the construction, design and specification proposed for this scheme will deliver dwellings that are inherently efficient and cost-effective during occupation. The hierarchy prioritises such demand-side activities to reduce wastage and improve efficiency (see Figure 5).

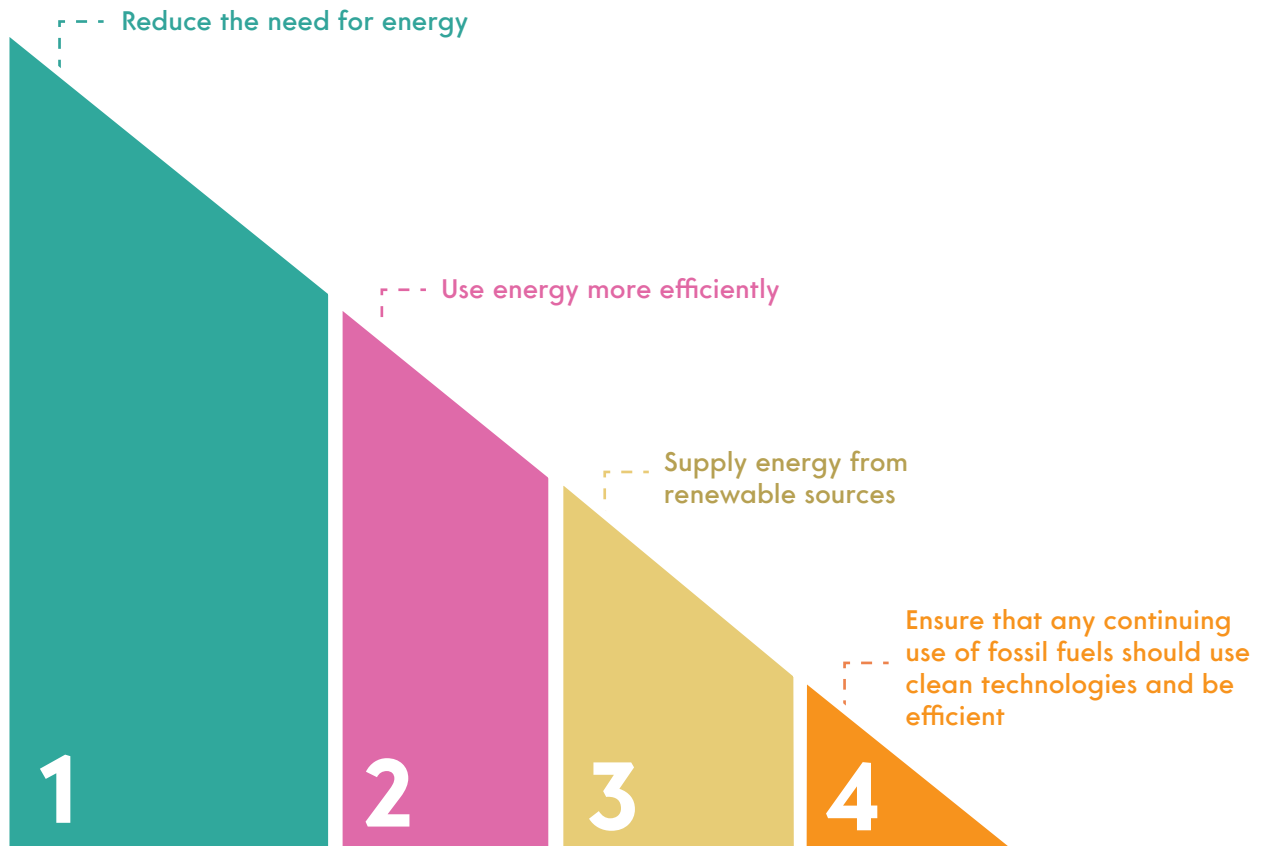


Figure 5 - Energy Hierarchy

Reduced demand for Water

The proposed development will be designed to reduce mains/potable water consumption and will include the following water efficient design and equipment:

- 'A' rated appliances will be used for dishwashers and washing machines (where provided) for their water saving capabilities;
- Specification of efficient water fixtures throughout the scheme (low flow taps and showers, dual flush WCs and low volume baths); and,
- In order to reduce water demand, the sanitary fixtures will be specified to achieve a calculated daily consumption of **<110 liters/person/day** as per MODAs ESG Design Standards.

Reduced demand for other Resources



The proposed Upper Brook Street development makes use of previously developed land (an existing surface car park). As a result, no virgin land will be altered during construction and there will be minimal disruption to the existing landscape.

The development site is located within an urban centre, in a highly sustainable location; particularly in relation to distance to amenities, key pedestrian routes, rail, and bus transport nodes, will mean that there will be a reduced need for residents to own cars. These factors will result in lower carbon emissions being produced from the development's operation.

4.2.3 Source Materials Responsibly & Sustainably

This development will contribute towards the responsible and sustainable sourcing of materials in the following ways:

- Materials will be responsibly sourced from suppliers operating an Environmental Management System or procuring timber verified by either the Forest Stewardship Council (FSC) or Programme for the Endorsement of Forest Certification standard (PEFC);
- Construction materials will be sourced locally where feasible and viable, which will minimise the impact of carbon dioxide emissions associated with the transportation of materials.

An early stage Sustainable Procurement Plan will be produced outlining the considerations that will be made when selecting and specifying materials. The measures set out will prioritise the purchasing of products with **responsible sourcing certificates such as FCS, ISO 14001** etc. interrogating supply chains of suppliers and sub-contractors and sourcing products from manufacturers that share MODAs sustainability goals and agenda.

Emphasis will be placed on **sourcing materials with high recycled content** over virgin materials to minimise the resources associated with the extraction and manufacturing processes of raw materials. The MODA Design Standard SE.06 requires supply chain engagement to take place throughout the development of the project, addressing issues relating to energy, water use, resource management, embodied and operational carbon emissions, social values, health and safety and material traceability.

The principle contractor will ensure that all timber and timber-based products used in the buildings meet the definition of legally harvested and traded timber. The client, design team and principle contractor will give priority involving other parties that have similar sustainability goals such as manufacturers that have transparency and visibility throughout their supply chain, declare and actively try to reduce their embodied carbon per functional unit and use electric vehicles to distribute their products.

The design team and principal contractor will use Environmental Product Declarations (EPD) to gain clarity on the product's material content, embodied carbon for their given life stages, the proposed life span and end-of-life scenario. Comparing environmental impact of similar products through EPDs is useful and can be used as a tool to inform decision making alongside other factors such as cost.



Demolition & Excavation Waste

During the design process, the project team will approach **waste as a resource** and consider opportunities for material optimisation, reclamation, and reuse to design out waste from an early stage. Priorities will be given to minimise packaging, off cuts, damage and rework, through off-site, precision manufacture, just-in-time delivery and secure storage on site.

A pre-demolition audit will be undertaken to determine the material worth of the existing hard landscaping on the site. Conducting this audit **improves resource efficiency by maximising the recovery of materials** and diverting non-hazardous waste from landfill. This will determine how much of these existing materials can be retained in situ, retained and reused elsewhere on site, retained and recycled on site or nearby on another site. As the site requires excavation for the provision of the basement carpark, the excavation waste that arises should be put to best environmental use through attempts to reuse and recycle it. This will preferably occur on site but if this is not feasible efforts will be made to reuse locally or elsewhere rather than diverting to landfill.

The waste that does arise from the demolition/excavation of the existing tarmac surface carpark will be carefully managed using demolition strategies, segregation of materials and monitoring of waste flows. As part of the construction phase, the principle contractor will develop a Site Waste Management Plan to promote resource efficiency and prevent illegal waste activities. The plan will include:

- The target benchmark for resource efficiency, established by the MODA Design Standards (**A maximum of 6.5 tonnes (or 7.5m³) of construction waste to be generated per 100m² of GIA**)
- The target benchmark for diverting waste from landfill (**A minimum of 80% of waste diverted from landfill (excluding demolition and excavation waste)**)
- Procedures to minimise hazardous waste
- A waste-minimisation target and details of waste minimisation actions to be undertaken
- Procedures to estimate, monitor, measures and report on hazardous and non-hazardous site waste and demolition waste, where relevant, arising from work carried out by the principal contractor and all subcontractors. Waste data obtained from licensed external waste contractors needs to be reliable and verifiable, e.g. using data from EA/SEPA/EA Wales/NIEA waste return forms or from a PAS402 compliant company
- Monthly reporting of all construction waste data throughout the project checked against what would be expected based on the stage of the project, invoices, etc., to validate completeness of waste reporting data
- Procedures to sort, reuse and recycle construction waste into defined waste groups, either on site or through a licensed external contractor
- Procedures to review and update the plan
- The name or job title of the individual responsible for implementing the above.

Operational Waste Management Plan



The operational waste strategy for the scheme focuses on the segregation of waste at source, in order to maximise the potential for residents and visitors to recycle in accordance with Manchester City Council Core Strategy Policy EN19.

The proposed strategy has been developed in compliance with the above policy. The Site Logistics Management Strategy produced by Curtins states the following:

- An internally accessed, communal refuse and recycling store is located at ground floor of each building, facing onto Kincardine Road
- On refuse collection days, the building's management team will move bins for collection on Kincardine Road. Refuse collection will be by private contractor twice a week. Stores have been sized to store 21no. 1100l eurobins in Building A1, 9no. 1100l eurobins in Building A2 and 9no. 1100l eurobins in Building A3.
- Commercial units are anticipated to have a higher frequency of collection and will be managed by the tenant. Refuse for the units will be stored within the unit demise.

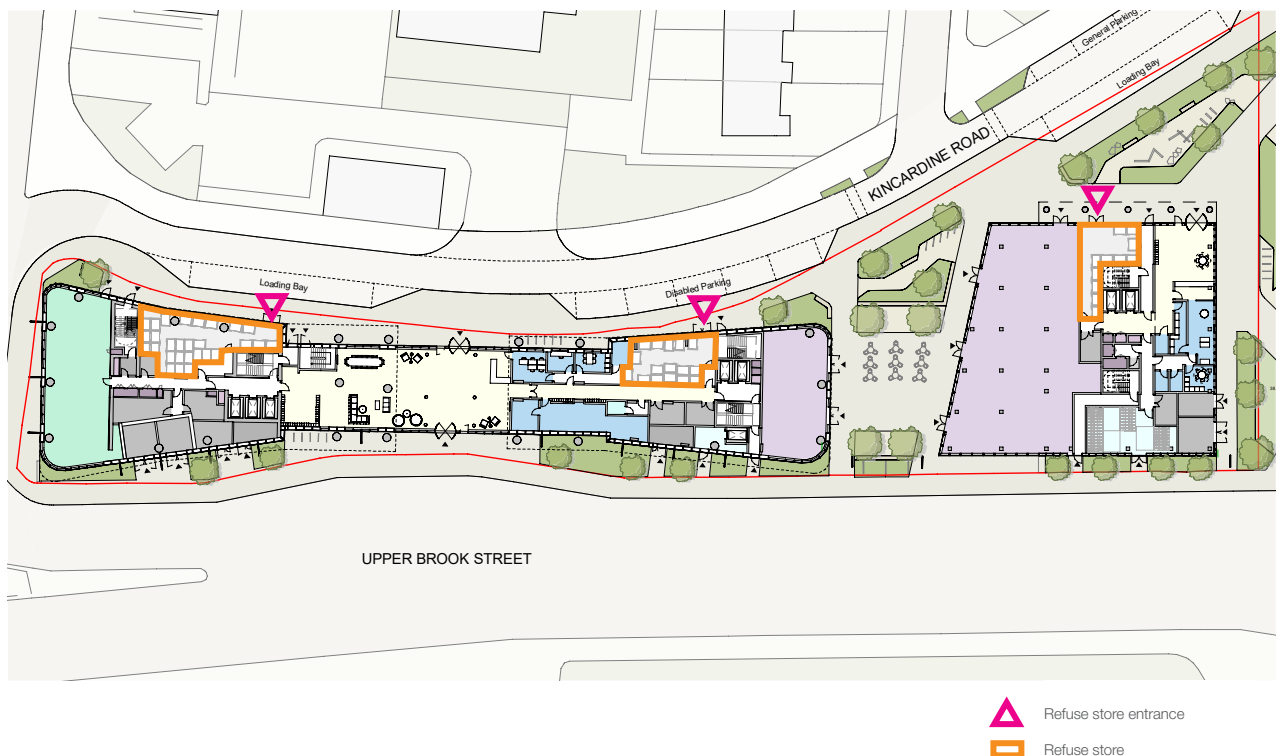


Figure 6 - UBS, Waste Strategy, Curtins



Design for Longevity, Adaptability or Flexibility and Reusability or Recoverability

MODA have set specific targets within their Design Standards to minimise the quantities of materials and other resources used and ensure specification and sourcing of materials and resources is responsible and sustainable. The target set under the Design for End of Life criteria R.02 is for **30% of components or prefabricated units used to be easily separated on disassembly/deconstruction into material types suitable for recycling or reuse to avoid unnecessary waste going to landfill.**

With this in mind, early stage consideration towards **designing for longevity, adaptability and flexibility** will be made. During design and construction, waste arising from construction, demolition, excavation and municipal sources will be investigated into how they can be designed out.

The design process will be realistic in its scope for the development to accommodate change, be reconfigured and remodelled. This includes materials, considering how frequently they are going to be replaced and how to avoid premature end of life for all components.

Methods implemented within the design process to incorporate these principles are further detailed in the Design for End of Life sub-section.

Given the future climate change projections, dense urban areas such as Manchester are expected to face the risk of the Urban Heat Island (UHI) effect. The following measures will be implemented to ensure the development is able to meet the long term needs of its occupants whilst being durable and resilient to any internal or external pressures:

- To help protect and reduce the development's contribution towards the urban heat island effect passive cooling measures such as trees
- Materials will be specified to be recyclable and detachable where feasible and practicable;
- Materials will be procured that adhere to specified durability standards to protect the developments external surfaces. The aim being to extend replacement intervals.

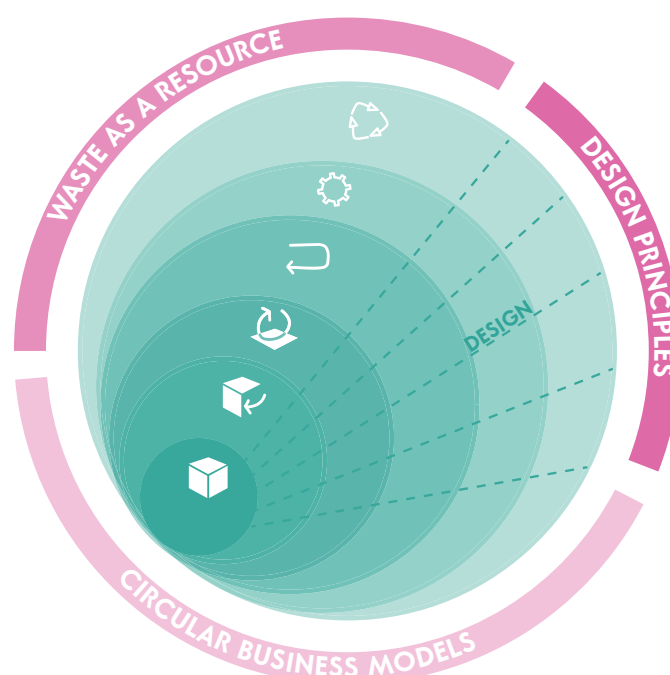


Figure 7 - Building Revolutions (2016) David Chesire, RIBA Publishing

Access & Maintenance Strategy

The design team have considered the various options for access to maintain and replace elements of the building that have varying lifespans, including the facade and plant. The objective of the strategy is to provide the most reasonably practicable, appropriate and robust methods of safe access to the entirety of the building façades, including 'set backs', mini-roofs and soffits, for all cleaning and maintenance and replacement tasks expected to occur over the life of the building. The following strategy has been developed to ensure ease of access for re-design, replacement and maintenance:

- The facade is predominantly formed from unitised curtain walling. Key tasks will typically involve external access and include replacement of fixed light glass panels, openable ventilation doors and fixed metal panels.
- The primary method of facade access to Building A1 is a building maintenance unit (BMU) installed at tower roof level on a twin track system around the perimeter of the roof space. The BMU features an integrated material hoisting winch for use during facade replacement works.
- Davit arms will then utilise the cradle to access the south facing facades via the intermediate roofs, where the building steps.
- A clear 2m exclusion zone is to be outlined at the foot of each elevation during facade works for safe landing in the event of an emergency.
- Buildings A2 and A3 will be accessed and maintained from ground level using MEWPs.
- Access to the inward opening windows positioned behind the perforated aluminium panels, to all three buildings, is to be by internal methods for cleaning and replacement. The panels are suitably sized to transport through the building via the lifts, using glazing robots and trolleys
- The external envelope is broken down into the zones shown in the adjacent diagrams with regard to the strategy for access, cleaning and maintenance. Various access systems types are required to enable access to these zones, as annotated in the key. These systems will either be used independently or in combination with other systems, depending on the task. Mobile glass robots and trolleys are envisaged as being used to aid glass replacement in all zones, on all levels.
- Internally, demountable suspended ceilings will allow ease of access to service zones.
- For internal finishes, products will be considered that do not rely on adhesives to ensure fabrics / finishes can easily be replaced without causing damage to surrounding elements and producing unnecessary waste. Fixings will be used where feasible to ensure ease of disassembly and replacement.

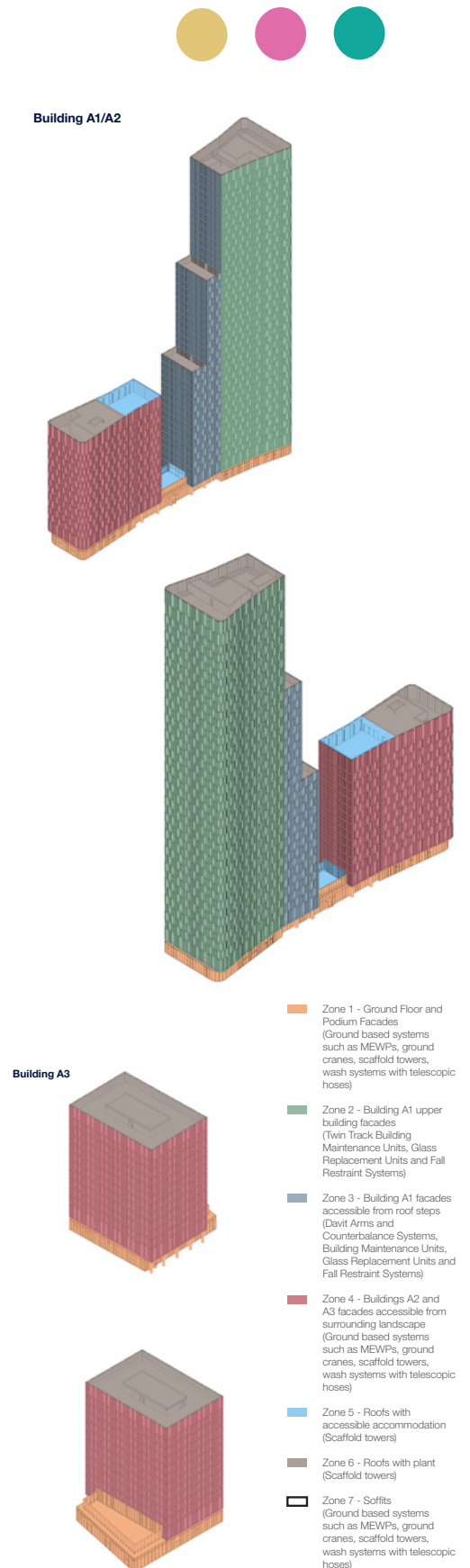


Figure 8 - UBS, Design & Access, June 2023



Design for End of Life

The building has been designed to have an indicative lifespan of 60 years. MODA have set specific targets within their Design Standards to ensure the development is designed for all eventualities and lifespan scenarios with the principles of longevity, deconstruction, flexibility and adaptability in mind.

From the earliest design stages, consideration has been given to minimise the quantities of materials and other resources used and ensure specification and sourcing of materials and resources is responsible and sustainable. The target set under the Design for End of Life criteria R.02 is for **30% of components or prefabricated units used to be easily separated on disassembly/deconstruction into material types suitable for recycling or reuse to avoid unnecessary waste going to landfill.**

With this in mind, early stage consideration towards **designing for longevity, adaptability and flexibility** will be made. During design and construction, waste arising from construction, demolition, excavation and municipal sources will be investigated into how they can be designed out.

The design process will be realistic in its scope for the development to accommodate change, be reconfigured and remodelled. This includes materials, considering how frequently they are going to be replaced and how to avoid premature end of life for all components.

Part of the design process that incorporates these methods of adaptability can also add value over the life of the development to enable reuse or for manufacturers to take back products. The following considerations have been addressed by the design team to ensure deconstruction is enabled by design:

- Design fixings that can easily be disassembled for adaptation, maintenance or replacement
- Consider panellised construction for easier disassembly and reuse
- Use standardised sizes of components for ease of reuse as these may have a wider range of applications
- Design MEP for ease of deconstruction and recycling
- When MEP systems reach the end of life, consider whether individual products can be reused in situ or elsewhere
- Flat-pack ductwork can reduce environmental impact of transportation and packaging at end of life
- Recoverability of plastics should inform ductwork design
- Consider the use of removable insulation rather than composite materials
- The use of permeable mortar joints in hard landscaping enables the reuse of paving slabs
- End of life waste can be reduced by specifying materials that reuse or contain recycled material and are recyclable
- As the scheme is residential, end of life of fixtures and fittings will be considered as the end users are unknown and finishes may ultimately be changed and disposed of



05

Deliverables

Circular economy approach for new development

Whole Development	P02	MINIMISE RESOURCE CONSUMPTION	The site has a single storey building and surface car-park. The material worth of the building fabric and existing hard landscaping should be reviewed and consideration taken as to how these materials can be reused and re-purposed within the project, for example as recycled aggregate for a hard landscaping sub-base. As areas of the site are being excavated to allow for a basement cycle storage and service zone, the team will look to incorporate the spoil into the design where possible.		Pre-Demolition Audit Site Waste Management Plan
	P01		Interrogation of building elements and volumes has been carried out to identify opportunities to reduce resource consumption. This has resulted in a reduction in materials used and increase in recycled content of elements such as the foundations, concrete slabs and secondary steelwork.		Bill of Quantities
	P02				Whole Life Carbon Assessment
	P03		The design team have identified opportunities to reduce carbon at each life cycle stage by considering materials as resource banks rather than part of a linear economy. Interrogating quantities minimises the risk of over design and therefore reduces resource consumption.		Life Cycle Assessment
	P04				
	P05				
	P06				
			An early stage Sustainable Procurement Plan will be produced outlining the considerations that will be made when selecting and specifying materials.		Sustainable Procurement Plan
	P02		MODA have established in operation water consumption targets within their ESG Design Standard document criteria R.04.	Specify equipment to reduce water use, increase water efficiency and achieve a rate of <110litres/person/day.	Sanitary-ware Schedule
	P02		To ensure that targets are set and consumption is reviewed periodically, the project will be registered with the Considerate Contractors Scheme, committing to a minimum score of 40. A valuable aim of this scheme is to improve the understanding of construction and impacts and resources, helping to enhance resource efficiency.		Considerate Contractors Scheme score of >40
	P03				
	P06				
	P02		A SMART metering strategy will be implemented within the design. The system must be designed in accordance with CIBSE TM39 Building energy metering. Meters shall be provided to monitor each floor with a dedicated metered distribution board within each department / demise if shared floor.		As built schematics
	P03				

Circular economy approach for new development

Whole Development	P02	ELIMINATE WASTE	A site waste management plan (SWMP) will be produced and include MODA's ESG targets for reducing, reusing and recycling. The ESG Design Standard sets out the following targets incorporating best practice measures as well as setting targets for the quantity of construction waste and percentage of waste diverted from landfill	< 6.5 tonnes (or 7.5m3) of construction waste /100m ²	Site Waste Management Plan
	P06			> 80% of waste diverted from landfill (excluding demolition and excavation waste)	
Contents	P02	ELIMINATE WASTE	During the operational stage of the development's lifespan municipal waste will be appropriately managed and reflected in an Operational Waste Management Plan. The waste storage areas, throughout the building and central storage area, will be clearly labeled for ease of segregating the different types of waste and will be easily accessible for the building users, building management team and the waste collection sub-contractor.		Operational Waste Management Plan
Whole Development	P01	DESIGN FOR END OF LIFE	The design team will consider the various options for access to maintain and replace elements of the building that have varying lifespans, including the facade and plant.		Access & Maintenance Strategy
	P02				
	P05				
	P01		From the earliest design stages, consideration has been given to minimise the quantities of materials and other resources used and ensure specification and sourcing of materials and resources is responsible and sustainable. The target is set under the Design for End of Life criteria R.02.	30% of components or prefabricated units used to be easily separated on disassembly/deconstruction into material types suitable for recycling or reuse to avoid unnecessary waste going to landfill.	Sustainable Procurement Plan
	P02				
	P04	DESIGN FOR END OF LIFE	All information pertaining to the materials 'locked' inside the development will be collated onto the Building for Material Banks (BAMB) platform where material passports will be created including data describing the characteristics of the materials in the products.		Material Passports
	P05				
	P06				



06

Conclusion

6.1 Conclusion



The design proposed for the Upper Brook Street PBSA development has been assessed against the key principles of Circular Economy, which have been influenced by national guidance and local planning policy framework. These principles were based around the following criteria:

Minimise Resource Consumption

- Minimise the quantities of materials used
- Minimising the quantities of other resources
- Specifying and source materials and other resources responsibly and sustainably

Eliminate waste

- Minimise waste in construction by designing for longevity, adaptability, or flexibility and reusability or recoverability
- Reduce waste & consumption of other resources by designing for efficiency

Design for End of Life

- Design for adaptation / disassembly & deconstruction
- Specify products for recycle / reuse to avoid unnecessary waste going to landfill

The development will meet the above criteria through the following measures:

- Materials with a low environmental impact, which are responsibly and locally sourced will be prioritised during development. Furthermore, where possible, existing materials from the to be demolished derelict building will be reused to reduce the demand for new materials during construction;
- The enhanced fabric and mechanical specification coupled with the installation of water efficient systems will ensure that the proposed development has a smaller carbon footprint due to reduced operational resource consumption;
- The development has been designed for longevity, flexibility and adaptability through use of detachable and durability standard materials. In addition, mitigation measures to reduce the impact of climate change and the Urban Heat Island Effect have been considered;
- Waste arising during demolition, construction, and excavation will be minimised through the implementation of a Waste Management Plan (WMP). The WMP will be used to ensure that there is adequate management and storage of demolition/construction waste takes place. Opportunities for the possible recycling of construction from excavation works will also be considered in line with best practice.
- The implementation of the operational waste strategy has been designed to encourage the occupants to segregate their waste at source and maximise the potential for recycling.

In conclusion, the Upper Brook Street PBSA development aligns with the Circular Economy Principles, National Best Practice Guidance and Local Planning Policy, supporting the vision for Manchester to become a zero waste city in the near future.



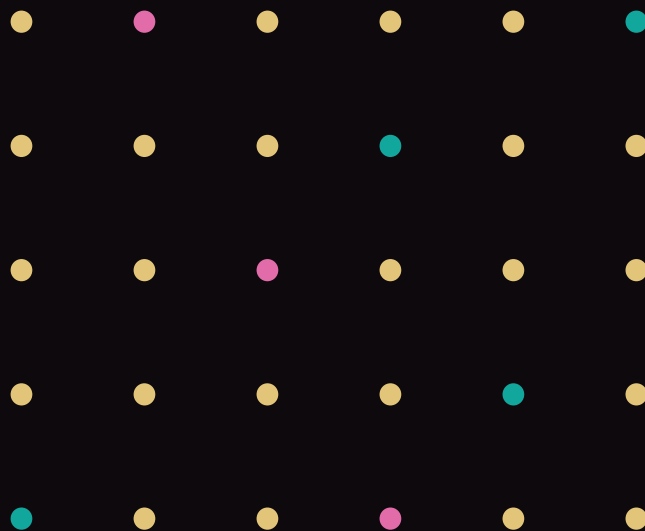
Next Steps

- 01 Following the issue of this report, the project team will further develop the commitments and address how the circular economy principles and strategies will be implemented.
- 02 A workshop will be held to discuss the delivery of information schedule and agree dates for gateway approval and sign-off.
- 03 Outcomes and objectives will be reviewed at various stages throughout project design and construction.
- 04 The Circular Economy statement will be reviewed and updated to include post completion updates, confirming the achieved targets and implementation of the established CE principles.
- 05 Certified will develop a schedule in the form of an excel tracker. This will be used throughout the design and construction stages of the project to track progress of the reports required to demonstrate the alignment with the established circular economy principals.

The following reports, along with responsibilities and timelines will be included within the tracker:

- Pre-Demolition Audit
- Site Waste Management Plan
- Bill of Quantities
- Whole Life Carbon Assessment (Reports produced at various stages)
- Life Cycle Assessment
- Sustainable Procurement Plan
- Considerate Contractors Scheme Certification
- Sanitary-ware Schedule
- As Built Schematics
- Operational Waste Management Plan
- Access & Maintenance Strategy
- Material Passports

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