LOVE
DESIGN
STUDIO

August 2022

Uxbridge Road

Circular Economy Statement

Contents / Agenda

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Section Zero

0 Summary & Introduction

Executive Summary

This Circular Economy Statement has been prepared on behalf of Infinite Partners (the applicant) as part of a planning application to the London Borough of Hillingdon (the Local Planning Authority).

The proposed development seeks to comply with the relevant policies within the London Plan 2021. This Circular Economy Statement outlines how the Policy S17 'Reducing waste and supporting the Circular Economy', and Policy D3 'Optimising site capacity through design led approach', will be met by the proposed development.

The Circular Economy statement has been prepared by *Love Design Studio* to support the planning application for 27 Uxbridge Road. It is a 1.40 acre site area bounded by Uxbridge Road to the north and Springfield Road to the west.

Within the site currently stands a 60's 13 storey, including plant, hotel building comprising 170 keys, meeting rooms and gym. The proposal is to retain this building and construct 265 additional hotel rooms and a range of amenities. A two storey central plinth serves as a link between the existing building and the new development.

Conserve Resources

The reuse of existing structure on site will be maximised.

Recycled content with efficient building design will be promoted to minimise the use of energy and water during building operation.

The material will be procured sustainably.

Whole Life Carbon Assessment is carried out to reduce embodied carbon in the building through comparing materials, building weight and carbon heavy elements.

Lean Design Principles, Layered design approach and consideration of high quality material palette will be followed.

Design to Eliminate Waste

The building layers with longer life expectancy will be designed for longevity, flexibility and adaptability and layers with shorter life expectancy for ease of maintenance, recoverability and replacement.

Permanent fixings will be avoided to enable future disassembly.

The new buildings developed on site will be immersed with Lean, Adaptable, flexible and Material Efficient Design incorporating overarching aims of reusability and waste minimization.

Flexibility, adaptability and feasibility for future scenarios will be considered

Sustainable Management

Materials will reused where possible following the hierarchy : Reuse in-situ> Re-use on-site> Reuse off-site> Recycling> Other recovery (energy)> Dispose.

Managing construction waste by achieving BREEAM targets and 95% reuse/recycling and recovery of waste through a resource management plan.

Municipal waste recycling target of 65% by 2030.

95% of the waste will be reused or recycled in line with the London Plan guidance.

Aim to achieve 95% diversion from landfill

Introduction

''The circular economy is a solution framework that offers better growth while addressing the most pressing global challenges.''
Ellen MacArthur Foundation

Adopted London Plan Guidance (March 2022), Policy SI7 'Reducing Waste and Supporting the Circular Economy', defines a circular economy as one where materials are retained in use at their highest value for as long as possible and are reused or recycled, leaving minimum residual waste.

In contrast to a linear economy (take, make, dispose), a circular economy keeps products and materials circulating through the system at their highest value for as long as possible, through reuse, recycling, refurbishment and remanufacturing.

Key aims of a circular economy statement is to demonstrate how a development will incorporate Circular Economy measures into all aspects of the design, construction and operation process. This will help to ensure that applicants seeking planning permission for relevant schemes:

- Consider strategies to facilitate the transition towards a circular built environment
- Report against numerical targets that will facilitate monitoring of waste and recycling
- Recognise opportunities to benefit from greater efficiencies that can help to save resources, materials and money.

This Circular Economy Statement has been prepared by Love Design Studio on behalf of Infinite Partners (the applicant) as part of a planning application to the London Borough of Hillingdon (the Local Planning Authority).

The proposed development seeks to comply with the relevant policies within the London Plan Guidance (March 2022). This Circular Economy Statement outlines how the Policy SI7 'Reducing waste and supporting the Circular Economy', and Policy D3 'Optimising site capacity through design led approach', will be met by the proposed development.

Figure 1: CGI of the proposed development

Development Overview

Fig 2 illustrates the proposed 1.40 acres site area for 27 Uxbridge Road. The site is bounded by Uxbridge Road to the north and Springfield Road to the west. The sites surrounding the proposal is a mixture of light industrial, residential and open spaces.

The site lies within the jurisdiction of the London Borough of Hillingdon, and is considered an application of Potential Strategic Importance (PSI). It will therefore be referred to the GLA Planning Authority,

Within the site currently stands a 60's 13 storey, including plant, hotel building comprising 170 keys, meeting rooms and gym.

The proposed scheme entails the Demolition of ground floor entrance, parking structure and north-east and south-west wings of the existing building, and refurbishment and extension of existing hotel to include additional accommodation at roof level and full height extension on the north elevation, together with walkways connecting to new buildings of between 6 and 8 storeys, to create additional hotel floor space (Use Class C1) and commercial floorspace (Use Class E(g)), along with ancillary facilities, parking and landscaping.

Figure 2: Site Plan, with the proposed development site marked in Red.

Section One

1 Policy & Regulations

Driving Guidance and Policy

Regional Policy

Regional Policy is governed by the London Plan (March 2021). It sets out integrated economic, environmental, transport and social framework for the developments.

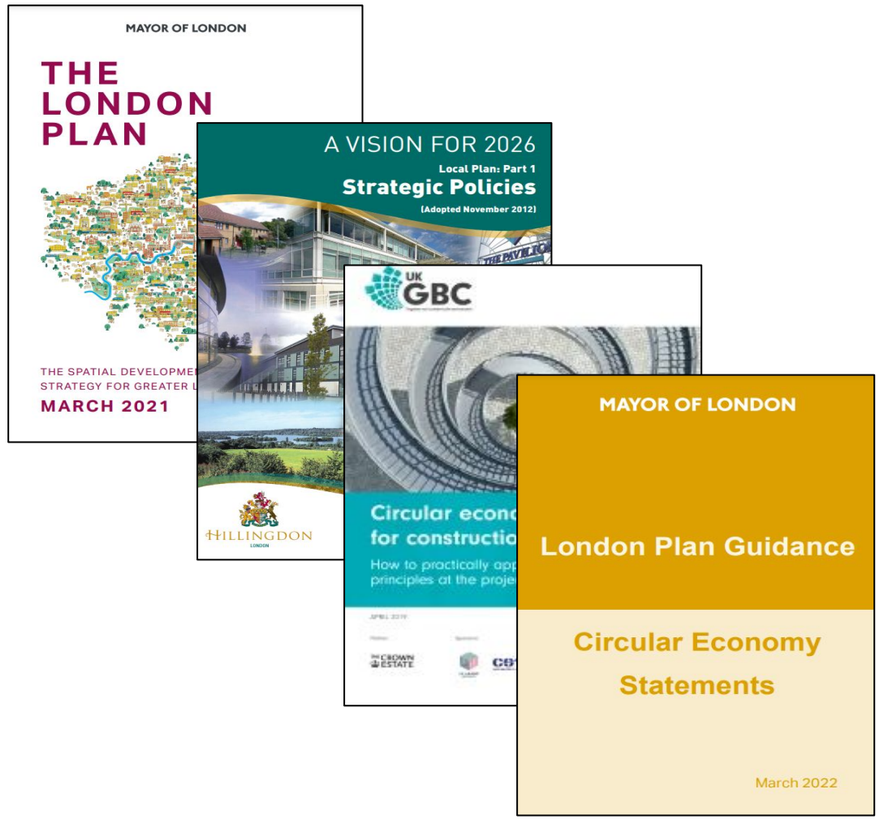
Policy S1 7 ‘Reducing Waste and supporting the Circular Economy’, and Policy D3 ‘Optimising site capacity through the design led approach’, set following principles for the developments :

A. Retention of materials in their height value for as long as possible, then reused or recycled with an aim of leaving minimal residual waste through:

- Encouraging waste minimization and waste prevention.
- Ensuring zero-biodegradable or recyclable waste to landfill by 2026.
- Meeting or exceeding the municipal waste target of 65% by 2030, Reuse/recycling or recovery of 95% of construction and demolition waste and the beneficial use of at least 95% of excavation waste.
- Designing developments with adequate, flexible and easily accessible storage space and collection system.

B. Policy SI7 requires referable development to promote circular economy outcomes through demonstrating following principles :

- How all materials arising from demolition and remediation works will be re-used and /or recycled
- How the proposal’s design and construction will reduce material demands and enable building materials, components and products to be disassembled and re-used at the end of their useful life
- Opportunities for managing as much waste as possible on site
- Adequate and easily accessible storage space to support recycling and re-use
- How much waste the proposal is expected to generate, and how and where the waste will be handled.



Local Policy

The Hillingdon Local Plan is the foundation for how planning is controlled in Hillingdon. The Local Plan is broken into two parts, with Part 1 focused on Strategic Policies and Part 2 comprising the Development Management Policies.

The following policies are considered relevant to this statement :

- Policy BE01: Built Environment
- Policy EM1: Climate Change Adaptation and Mitigation
- Policy EM11: Sustainable Waste Management
- Policy DMEI 2: Reducing Carbon Emissions
- Policy DMEI 13 : Importation of Waste Material

BREEAM

The proposed development will include structures to be designed and built to achieve a BREEAM ‘Very Good’ rating under the New Construction 2014 scheme. Implementing a circular economy approach can support achieving credits under Mat01 Life Cycle Impacts, Mat05 Designing for Durability and Resilience, Wst05 Adaptation to Climate Change and Wst06 Functional Adaptability, where targeted.

Assessment Guidance

The guidance for the methodology in this assessment is set out in the London Plan Guidance on Circular Economy Statements (March 2022). This document sets out the required scope of a GLA compliant assessment.

Section Two

2 Method Statement

Method Statement

The circular economy statement summarises the circular economy principles adopted in the design approach.The purpose of this statement is to report the implementation and adoption of these principles in the design proposals.

The circular economy statement will aim to respond to the policy SI7 of the London Plan Guidance (March 2022) that states:

Referable applications should promote circular economy outcomes and aim to be net zero-waste. A circular economy statement should be submitted, to demonstrate:

- How all materials arising from demolition and remediation works will be re-used and/or recycled;
- How the proposal's design and construction will reduce material demands and enable building materials, components and products to be disassembled and re-used at the end of their useful life;
- Opportunities for managing as much waste as possible on site;
- Adequate and easily accessible storage space and collection systems to support recycling and re-use;
- How much waste the proposal is expected to generate, and how and where the waste will be managed in accordance with the waste hierarchy;
- How performance will be monitored and reported.

This assessment will be undertaken with regard to the pre-consultation draft GLA guidance for producing circular economy statements.

In this document, the detailed strategic approach (Appendix A) has been taken towards Circular Economy and Key circular economy commitments (Appendix B) details the specific targets set for the scheme.

To ensure successful implementation of the circular economy principles throughout the project, the key steps shown on Figure 3 will be followed.

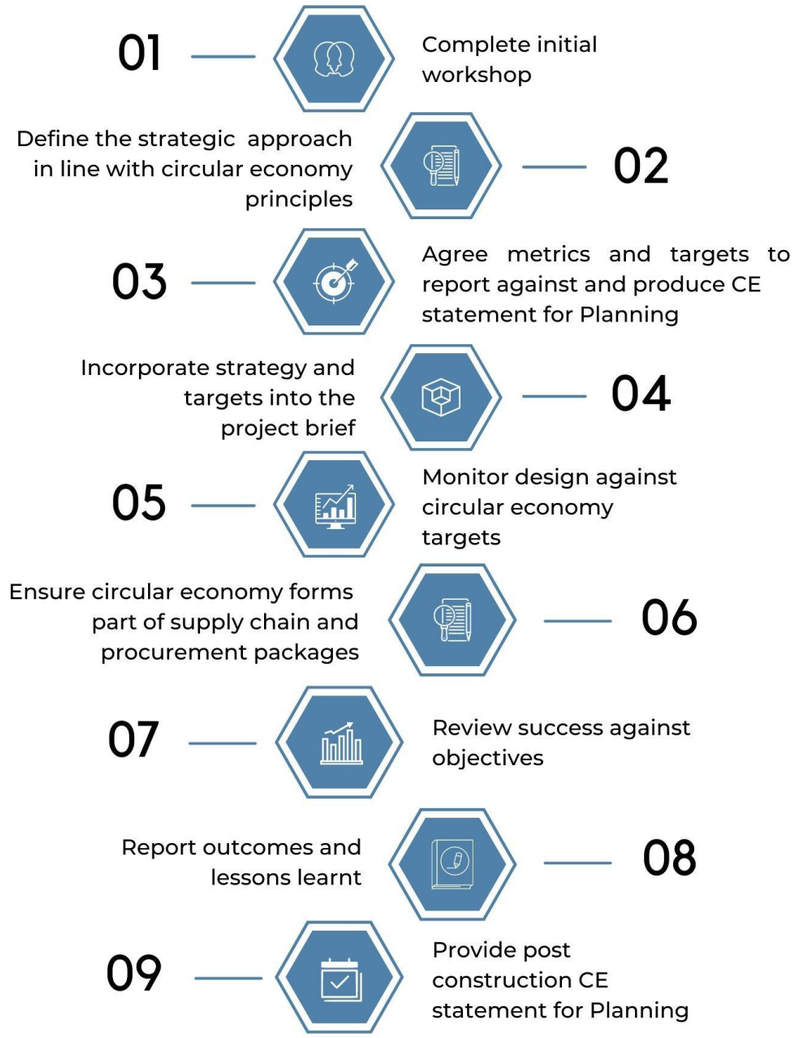


Figure 3: Key Steps To Ensure Successful Implementation Of Circular Economy Principles

Section Three

3 Circular Economy Approach

Circular Economy Approach

Adopted London Plan Policy S17 'Reducing Waste and Supporting the Circular Economy', defines a circular economy as one where materials are retained in use at their highest value for as long as possible and are reused or recycled, leaving minimum residual waste.

In contrast to a linear economy (take, make, dispose), a circular economy keeps products and materials circulating through the system at their highest value for as long as possible, through reuse, recycling, refurbishment and remanufacturing.

The end goal is to indefinitely retain the value of materials and and resources, with no residual waste at all.

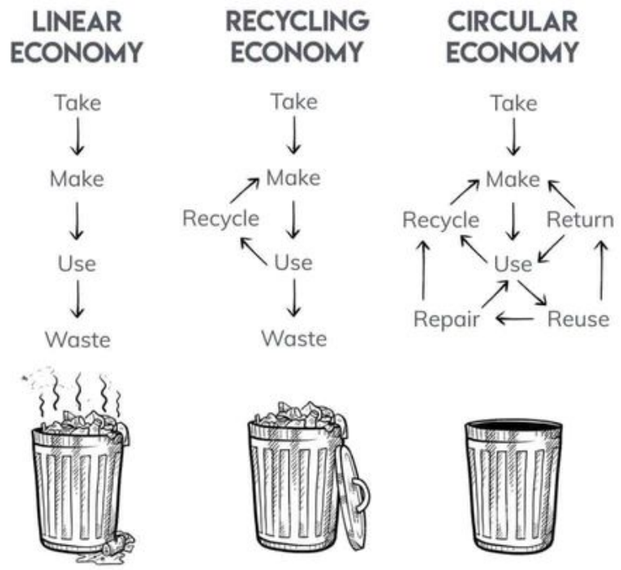


Figure 4 : Linear, Recycling and Circular Economies (interpreted from GLA,2019)

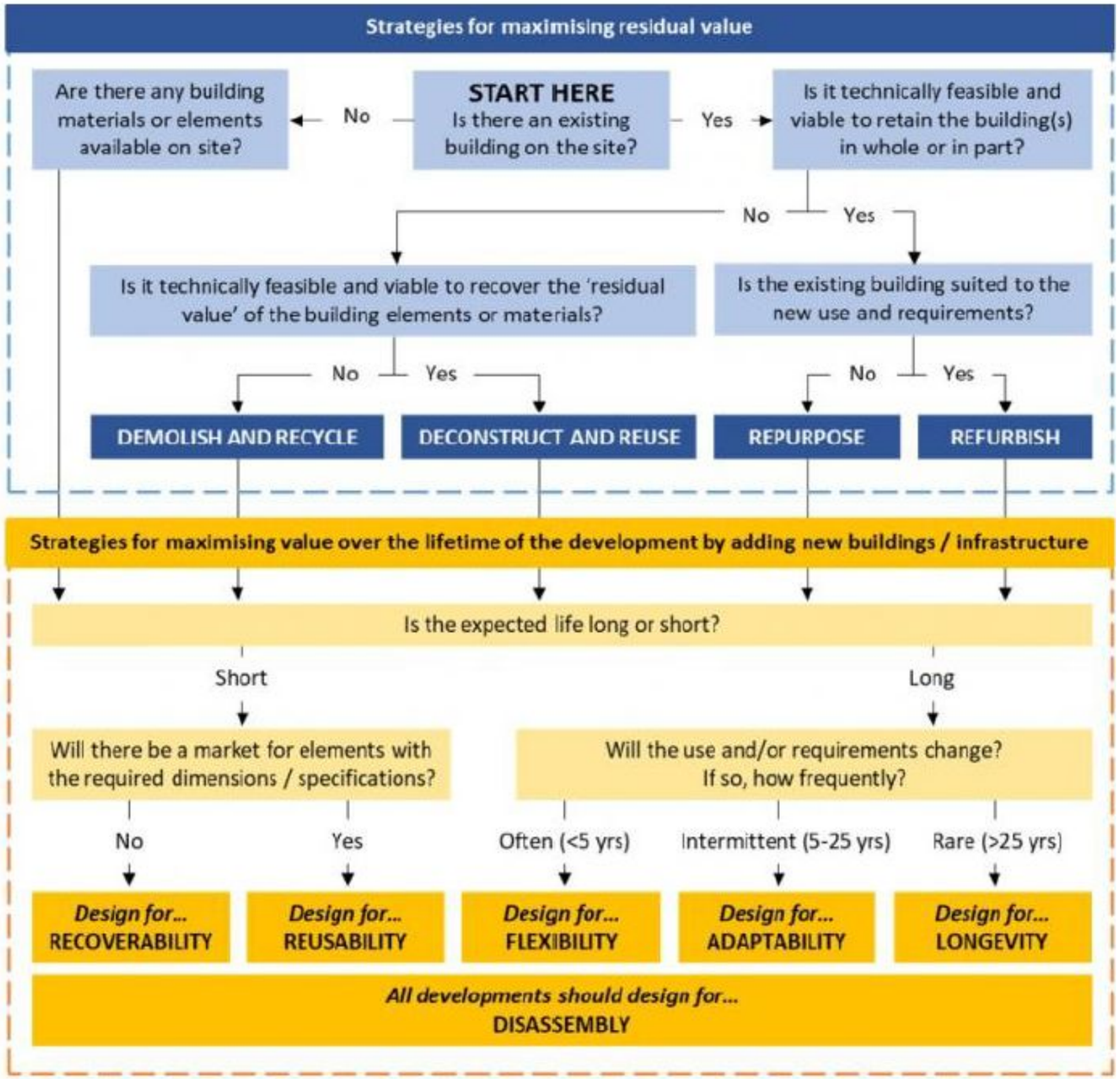


Figure 5 : Strategies for maximising residual value (GLA,2019)

Circular Economy Approach

Existing Buildings

The path followed for maximising the residual value has been marked on the *decision tree for design approached for existing structures/buildings* on Figure 6.

The proposed scheme entails refurbishment and extension of the existing 60's 13 storey, including plant, hotel building complex present on site.

Significant embodied carbon savings (Please refer WLC Report) have been made in the early design stages through careful material specification and by designing to retain and retrofit the existing building on site, rather than demolishing and rebuilding. Once complete, the refurbished building accounts for around 40% of the GIA of the proposed development.

The reuse of existing asset also helps in minimising the demolition waste and new resource depletion and results in overall cost and programme savings. This is explored further later in this report.

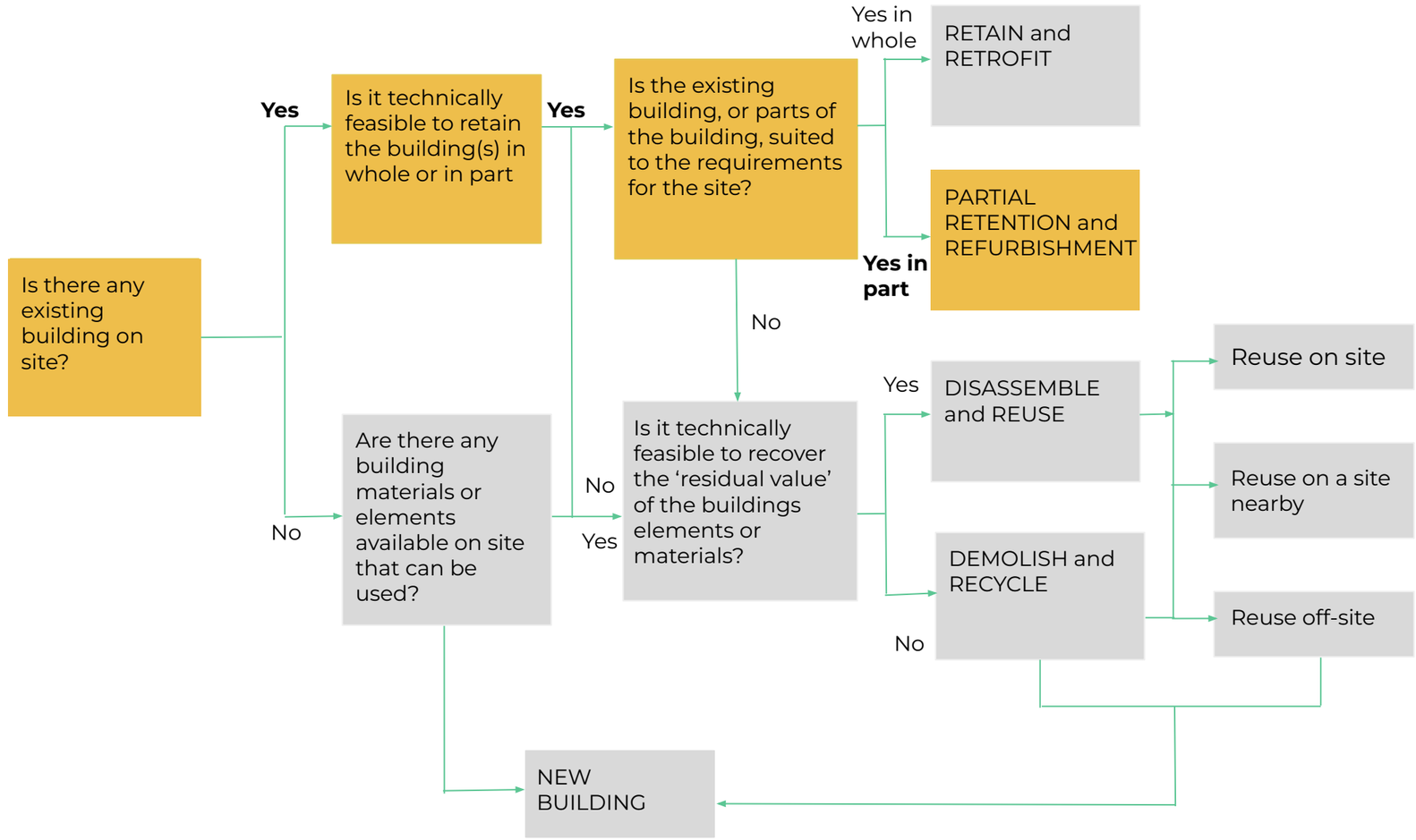


Figure 6 : Decision tree for design approaches for existing structures/buildings(interpreted from GLA, 2019)

Circular Economy Approach

Whole Site

The strategies followed to maximise the value over lifetime of the development has been marked on the *decision tree for design approaches for new buildings, infrastructure and layers* on Figure 7.

The new development on the proposed scheme has been designed for longevity, adaptability and flexibility. This offers long term operational cost and whole life carbon savings, due to the reduced need of repairing and replacing damaged elements from operational wear and tear, as well as avoidable weathering and changes to climatic conditions over time. It also helps in retaining the asset value and enables the space to adapt to their anticipated needs.

This is explored further in this report.

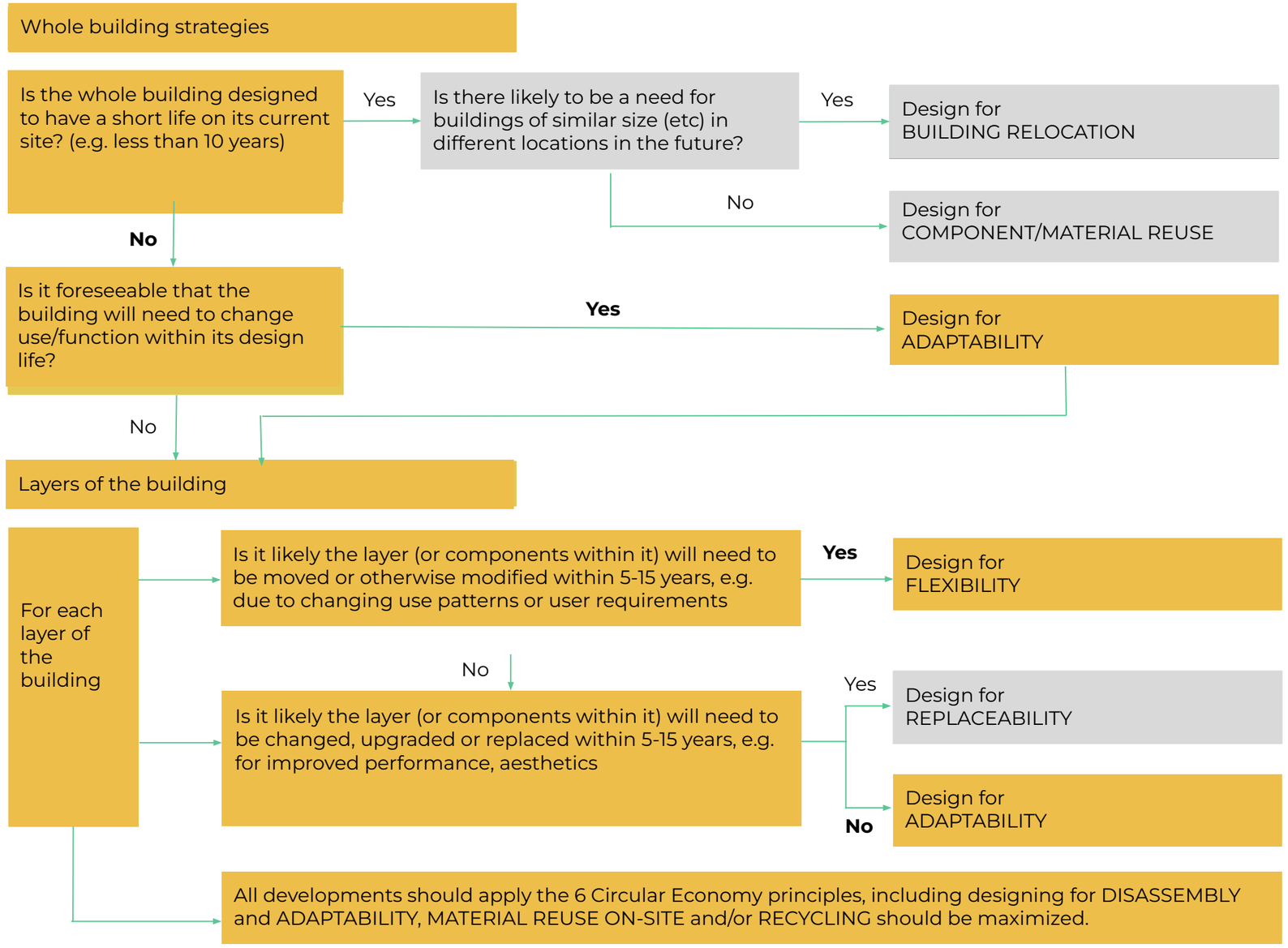


Figure 7: Decision tree for design approaches for new buildings, infrastructure and layers over the lifetime of development

A. REUSE

1) Reuse The Existing Asset

The proposal comprises the retention of the main 13 storey, including plant, existing building, including its primary and secondary structure, internal finishes on all levels above 2nd floor and its MEP Plant.

The existing building's substructure will be reused in its entirety.

BENEFITS

- Reduce embodied carbon impact.
- Minimise demolition waste and new resource depletion
- Reduce disruption to local neighbourhood from construction works, e.g. noise and dust, leading to better community relationships
- Cost and programme savings
- Achieve BREEAM credits

ACTIONS AND STRATEGIES

- Initial surveys and feasibility studies
- Design team appraisal of the asset's latent or potential qualities; discourage conservatism and support radical thinking on interventions that could unlock an asset's value.

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2) Recover Materials And Products On Site Or From Another Site For Reuse

Smaller secondary structures such as the pavilion at first floor level and the staff cycle store at ground floor level will also seek to re-use steel framing from smaller existing secondary structures that will be demolished.

The new-build RC sub-structure will have 50% GGBS recycled binder content

BENEFITS

- Save on the cost of procuring new materials
- Contribute towards reuse and recycling targets
- Deliver carbon savings

ACTIONS AND STRATEGIES

- Pre-development audit/pre-demolition audit
- To drive innovation and circular principles products should be specified using performance criteria, rather than by brand or specification. For example, tensile and yield for steel and lux levels for lighting.

3) Share Materials Or Products For Onward Reuse

Where possible, all equipment that cannot be retained, will be donated, and if not financially viable, it will be sold (avoid sending to landfill / scrapping) - will this be considered

BENEFITS

- Reduce landfill costs.
- Contribute towards reduced waste and diversion from landfill target.
- Provide carbon savings.
- Increase social value of development.

ACTIONS AND STRATEGIES

- A demolition contractor will be engaged early in the process to enable products to be reused
- This will include ensuring high quality segregation of materials, such as demolition aggregate, to enable higher grade reuse.

B. DESIGN BUILDINGS FOR OPTIMISATION

1) Design for Longevity

- This is a long-life partial new development with an expected life of over 60 years, therefore will be designed for longevity to ensure the built asset allows for challenging climatic conditions. The materials will be protected from degradation from environmental conditions in line with the requirements under BREEAM Mat05.

- Longevity has been prioritised with the façade design: the intent comprises a fair-faced concrete system that will achieve high quality through off site fabrication, and require little or no maintenance throughout its use.

BENEFITS

- Long term operational cost and whole life carbon savings, due to the reduced need of repairing and replacing damaged elements from operational wear and tear, as well as avoidable weathering and changes to climatic conditions over time.
- Contributes towards sustainability benchmarking schemes.

ACTIONS AND STRATEGIES

- Maximise the durability and service life of building elements and services in relation to their replacement cycle.
- Plan for an appropriate and simple maintenance strategy from the design stage, including using condition-based monitoring for equipment
- Select materials from manufacturers offering take-back schemes and leasing

2) Design For Flexibility

Non-structural internal walls within the residential apartments allow for future flexibility of layouts

BENEFITS

- Long term operational cost and whole life carbon savings, due to the reduced need to refurbish.

Figure 8: Example of Recycled Concrete Aggregate

3) Design For Adaptability

- The brief has been studied against the clients needs, to optimise the required size of various spaces - particularly the industrial incubator space at ground floor level and the hotel amenities on ground and first floor levels - to identify spaces that can be multifunctional through the use of carefully designed circulation and moving walls.
- The BREEAM assessment will address adaptation for climate change under Wst05, which requires the development to incorporate measures to mitigate impacts of extreme weather conditions arising from climate change over the lifetime of the assets.

BENEFITS

- Retains the asset value.
- Long term cost and carbon savings.
- It enables the space to adapt to their anticipated needs.

4) Design For Assembly, Disassembly and Recoverability

The use of Recycled Concrete Aggregate (RCA), Recycled Masonry (RA) will be considered in non-structural elements, piling mat or sub-base. Reinforcing steel can be recovered, recycled and reused at the end of a building or structure service life.

BENEFITS

- Future proofing the asset

C. STANDARDISATION OR MODULARISATION

- Series of prefabricated precast concrete panels will be looked into for facades. In addition, one option to explore in the next stages would be to replace the in-situ superstructure with a 2D prefabricated panelised solution
- Efficiency measures have been reviewed and integrated in the intent, such as use of a standardised 5.2m wide bay module across the new-build design and standardisation of window sizes.

BENEFITS

- Enable easier future recovery, incorporation in new designs, and reuse
- Results in less waste in manufacture and construction – standardised elements mean raw materials can be ordered ‘to size’ and in bulk with minimal excess
- Enable less material being used, especially with structural elements for high-rise construction and precision in factory manufacturing.
- Higher and more consistent quality, more reliable performance through repeat production

Figure 9: Precast Concrete Facade Panels

D. DESIGN AND CONSTRUCT RESPONSIBLY

1) Use low impact new materials

- Where possible, the scheme will specify non-composite materials and procure certified material.
- Create a budget and programme timescale

BENEFITS

- Contributes towards sustainability
- Enables carbon reductions
- Lead to improved health and wellbeing for building users through material ingredient transparency and optimisation

ACTIONS AND STRATEGIES

- Ensure that material specification is clear, with regards to the use of low-impact materials.
- Necessary performance data to be included when researching materials, including the specification of Environmental Product Declarations (EPDs) where possible.
- Avoid toxic materials.
- Establish a system or plan to monitor what is being delivered to site and ensure that it aligns with the specification.

2) Use recycled content or secondary material

The use of Recycled Concrete Aggregate (RCA), Recycled Masonry (RA) could be considered in non-structural elements, piling mat or sub-base. Reinforcing steel can be recovered, recycled and reused at the end of a building or structure service life.

BENEFITS

- Avoid the use of virgin materials and enable the use of waste byproducts.
- Reduce embodied carbon.
- Contribute towards sustainability

ACTIONS AND STRATEGIES

- Carry out research to determine the best approach to recycled content and secondary materials based on the location of the site.

3) Design out waste

The emerging facade design is considering a number of offsite precast strategies, including 1. traditional precast, 2. GFRC and 3. Ultra High Performance Concrete. These options are being interrogated with respect to their durability, recycled content and ability for reuse/recycling at end of life, embodied content and suitability for prefabrication as part of a 'closed-panel' modular construction approach.

BENEFITS

- Reduce waste arising from the project and associated landfill costs
- Reduce embodied carbon resulting in cost and carbon savings
- Enable BREEAM and other certification credits to be achieved.
- Reduce the number of finishes, which may result in greater flexibility in use.
- A disassembly and recycling guide for the asset could result in an additional potential source of future revenue for the client.
- Achieve faster construction times and reduced snagging / quality assurance issues, particularly if this is achieved through offsite construction.

ACTIONS AND STRATEGIES

- Design for reuse and recovery.
- Design for deconstruction and flexibility.
- Design for off-site construction.
- Design for materials optimisation.
- Design for waste efficient procurement.

D. DESIGN AND CONSTRUCT RESPONSIBLY

4) Reduce construction impacts

- There will be a listed commitment within Sustainable procurement plan to reduce packaging, to use reusable packaging or to operate packaging take-back-scheme.
- Quantities of materials will be carefully assessed to avoid to avoid waste and all materials will be stored on-site safely to avoid spoil or ruin.

BENEFITS

- Deliver cost savings on logistics and waste management.
- Ensure safer working environment for those on site.
- Contribute toward reuse and recycling targets.
- Contribute towards sustainability benchmark schemes
- Reduce costs and time through avoidable waste.

ACTIONS AND STRATEGIES

- From as early in the design stage as possible, comment on a waste and resource minimisation ideas
- Ensure waste prevention and minimisation ideas are developed and design solutions are technically and commercially viable
- Specify materials with increased levels of recycled content where there is no impact on cost or performance.
- Ensure that design actions reduce construction waste and increase reused/recycled content

Section Four

4. Appendices

Appendix A – Table 1 : Strategic Approach

ASPECT	STEERING APPROACH	EXPLANATION	TARGET	SUPPORTING ANALYSIS/ STUDIES/ SURVEYS/ AUDITS
Circular Economy Approach for new development	• The new buildings developed on site will be immersed with Lean, Adaptable, flexible and Material Efficient Design incorporating overarching aims of reusability and waste minimization. • Best practice principles will be followed while maximising opportunities to embed circular economy principles.. • Encouraging durable construction and flexible design, both of which contribute to greater longevity. • Plan for sustainable sourcing of materials while minimising packaging, off-cuts • use prefabricated elements and design for disassembly and demountability	• The new build blocks have been designed with a highly efficient net/gross floor area ratio, and their massing has been simplified during the design process to optimise their form factor (area to volume ratio). • Optimisation of various spaces - particularly the industrial incubator space at ground floor level and the hotel amenities on ground and first floor levels - to identify spaces that can be multifunctional through the use of carefully designed circulation and moving walls. • use of a standardised 5.2m wide bay module across the new-build design and standardisation of window sizes. • The emerging facade design is considering a number of offsite precast strategies, including 1. traditional precast, 2. GFRC and 3. Ultra High Performance Concrete. These options are being interrogated with respect to their durability, recycled content and ability for reuse/recycling at end of life, embodied content and suitability for prefabrication as part of a 'closed-panel' modular construction approach. • Longevity has been prioritised with the façade design: the intent comprises a fair-faced concrete system that will achieve high quality through off site fabrication, and require little or no maintenance throughout its use. • Steel to have high recycled content. • Concrete to have 50% GGBS content.	• 95% diversion from landfill at end of life (GLA Target) • 85%-100% member utilization • BREEAM target	• Site Waste Management Plan • Operational Waste Management Strategy • BREEAM Pre-Assessment • Loading assessment • Sustainable Procurement Plan • Pre-Demolition Audit • Sustainability Strategy • Whole Life Cycle Assessment
Circular Economy Approach for existing development	• Minimizing the quantities of resources used • Demolition will be carried out as per the pre-demolition audit to maximise the opportunities to reuse, recycle and recover within the development.	• The scheme has prioritized refurbishment over demolition. It retains main 13 store including plant, existing building, including its primary and secondary structure, internal finishes on all levels above 2nd floor and its MEP Plant • The new build blocks have been designed with a highly efficient net/gross floor area ratio, and their massing has been simplified during the design process to optimise their form factor (area to volume ratio). • optimise the required size of various spaces - particularly the industrial incubator space at ground floor level and the hotel amenities on ground and first floor levels - to identify spaces that can be multifunctional through the use of carefully designed circulation and moving walls. • Smaller secondary structures such as the pavilion at first floor level and the staff cycle store at ground floor level will also seek to re-use steel framing from smaller existing secondary structures that will be demolished.- • Excavated material will be used for filling.	95% diversion from landfill (The higher value out of the GLA target and BREEAM target).	• BREEAM Pre-Assessment • Pre-Demolition Audit • Whole Life Carbon Assessment • Site Waste Management Plan
Circular Economy Approach for municipal waste during operation	• Provide sufficient waste infrastructure to enable optimum management of waste. • Waste management strategy to include separation of waste streams for recycling	• Operational waste management plan to be developed at the later design stages, which meets or exceeds all municipal waste policies within London and encourages a circular approach to waste arising from future tenants and occupants. • MVHR units to be installed to minimise energy waste. • All on-site staff be briefed in line with the circularity aspirations of the scheme • Easily accessible waste storage on site.	65% diversion from landfill at by 2030 in line with London Plan	• Operational Waste Management Strategy • Waste Storage and Collection • Requirements & Calculations

Appendix B – Table 2 : Key Circular Economy Commitments

Building "Layer" (as per GLA guidance)	Site	Substructure	Super-structure	Shell/Skin	Services	Space/Stuff	Construction Stuff	Summary	Challenges	Counteractios + who+ when	Plan to prove and quality
SECTION A: CONSERVE RESOURCES											
Minimising the quantities of materials used	Development will take place while retaining 13 storey, including plant, -existing structure and foundation. Scenario modelling undertaken to assess options to optimise adaptability Optimization of form-factor,	The existing building's substructure will be reused in its entirety.	Precast strategies considered, including traditional precast, GFRC and Ultra High Performance Concrete	Robust and long-lasting finishes will be selected reducing the need of frequent maintenance and replacement Lean Design Principles, Layered design approach,consideration of high quality material palette (Mat 01)	Efficient MEP design with prefabricated or of-site assembled services where possible. Services to be accessible for ease of maintenance and replacement without damaging internal or external building elements. Existing MEP plant retained	Aim to reduce the use of plasterboard where not required in communal areas and stairwells	Offsite construction used where possible to minimise breakage and wastage. material suppliers will agree to reduce packaging, to use reusable packaging or to operate a packaging take-back scheme Material delivery will be coordinated to avoid stock-piling and risk of damage	Retention considered over demolition Lean Design and Layered designed principles have been followed Material quantities,packaging and transportation will be reviewed	Ensuring the commitments are carried through despite any constraints	Structural engineer to incorporate optimisation requirements into design	Quantify using Whole Life Carbon Assessment
Minimising the quantities of other resources used (energy, water, land)	Site has maximised reuse of brownfield areas and existing structures and foundations minimizing risk impact on virgin land.	The new-build RC sub-structure will have 50% GGBS recycled binder content	Flexibility, adaptability and feasibility for future scenarios considered through energy strategy	Lean Design Principles, Layered design approach Certified material to be procured where possible	Existing services to be retained and reused where possible. Targeting a low water Consumption of 105 litres/person/day Energy demand is reduced following the Energy Hierarchy; Low energy and water saving fittings will be used. Potential use of modularity	The scheme will comprise spaces which will be inherently flexible and adaptable Repetitive layouts are used across the different floors. Standardization of window sizes Repetition and the reduction of bespoke pieces result in a lower amount of construction waste.	There will be monitoring required onsite for energy and water use during construction works.	Onsite monitoring of energy and water use, reduction of operational energy and water use A Whole Life Carbon Assessment has been Undertaken to ensure holistic reduction of operational and embodied carbon emissions.	Shortfalls in the supply Chain EPDs not available for all building material Design constraints On site issues	Preconstruction supply chain engagement	Review every design stage Design team to review the Prelims terms and push the contractor to minimise water and energy used on site.
	A Whole Life Carbon Assessment has been undertaken to ensure holistic reduction of operational and embodied carbon emissions.Energy Assessment ensures reduction in energy demand following Energy Hierarchy.										

Contd Table 2 - Key Circular Economy Commitments

Building "Layer" (as per GLA guidance)	Site	Substructure	Super-structure	Shell/Skin	Services	Space/Stuff	Construction Stuff	Summary	Challenges	Counteractios + who+ when	Plan to prove and quality
SECTION A: CONSERVE RESOURCES											
Specifying and sourcing materials responsibly and sustainably	Select locally sourced materials where possible. Sustainable procurement plan to be produced and committed to.	All in-situ concrete to use 50% recycled binder and GGBS will be used, 50% of cement content.	Option to replace the in-situ superstructure with a 2D prefabricated panelised solution Considerations for opportunities to use secondary/recycled aggregates in accordance with BREEAM Waste 02 will be assessed at detailed design.	Consider the use of low embodied carbon façade cladding. Considerations for opportunities to use secondary/recycled aggregates in accordance with BREEAM Waste 02 will be assessed at detailed design.	Existing services to be reused and refurbished Recycled content of ductwork to be maximised Greywater harvesting included.	On-site staff to be briefed in line with the circulatory aspirations of the scheme	Sustainable Procurement Plan has been developed.	Local manufacturers to be given Preference Suppliers to provide EPDs or disclose supply chain Manufacturers using predominantly renewable energy to be given priority	Supply constraints on concrete with recycled concrete Limitations in following the sustainable procurement plan	Preconstruction supply chain Engagement Continually monitoring against policy Optimization of structural design	Review every design stage if EPDs aren't available then request for material disclosure through a standard questionnaire
	Specification of construction products with an Environmental Product Declaration (EPD) will be prioritised where feasible/relevant										
SECTION B: DESIGN TO ELIMINATE WASTE (AND FOR EASE OF MAINTENANCE)											
Designing for reusability /recoverability/ longevity /adaptability /flexibility	Retaining 13 12 storey-existing structure and foundation. The excavation and demolition waste is being reduced	The use of Recycled Concrete Aggregate (RCA), Recycled Masonry (RA) could be considered in non-structural elements, piling mat or sub-base. Reinforcing steel can be recovered, recycled and reused at the end of a building or structure service life.	Option to replace the in-situ superstructure with a 2D prefabricated panelised solution Flexibility, adaptability and feasibility for future scenarios considered (Wst 05/06)	Longevity has been prioritised with the façade design: Ultra High Performance Concrete specified on facade that will achieve high quality and is resilient to climate change and requires little or no maintenance throughout its use. (Wst 05/06)	Building services take into account future climate change scenarios Flexibility, adaptability and feasibility for future scenarios considered (Wst 05/06)	Outdoor spaces adaptable to variety of uses	Sustainable procurement plan to be developed	Reusability, adaptability and flexibility has been considered at each stage where possible	Adaptability, recoverability and Design for disassembly may be challenging through design development	Support through BREEAM assessment Monitoring CE principles execution at every stage	Review sustainable design and construction strategy with sustainable procurement plan

Contd Table 2 - Key Circular Economy Commitments

Building "Layer" (as per GLA guidance)	Site	Substructure	Super-structure	Shell/Skin	Services	Space/Stuff	Construction Stuff	Summary	Challenges	Counteractios + who+ when	Plan to prove and quality
SECTION B: DESIGN TO ELIMINATE WASTE (AND FOR EASE OF MAINTENANCE)											
Designing out construction,demolition,excavation,industrial and municipal waste arising	Concrete from Demolished waste crushed on site for reuse as necessary Excavation waste to be reused on site except contaminated spoil	A site waste management plan will be produced and followed.	A site waste management plan will be produced and followed.	Operational Waste Management Plan will be produced and followed	Just in time delivery system to be implemented to avoid piling and breakage Of material on site. Modular construction where possible Packaging take-back schemes (Wst 05)	Flexible modular grid system for interiors	BREEAM On site waste targets and monitoring Waste carrier data will be collected Reduced packaging on deliveries to site	Exploring the use of modular and prefabricated where possible to design out waste Considerations for packaging take-back schemes and just-in time deliveries	Meeting the on site targets and successfully implementing take back schemes	Review of construction Waste during derailed design	Sustainable Design & Construction Strategy Sustainable Procurement Plan
	Demolition on site will be addressed through pre-demolition audit, 95% diversion from landfill (Wst 01) Materials, components, and products to be sourced as part of a leasing / buy back scheme, where feasible Design coordinated to avoid excess cutting and jointing of materials / components that generate waste Pre-refurbishment audit to be undertaken on the existing building										
SECTION C: MANAGE WASTE											
Demolition waste (how waste from demolition of the layers will be managed)	Demolition will be guided by pre-demolition audit. To establish ways to minimise waste, prior to construction site waste management plan to be developed. This will guide to minimise waste at source, assess the use, re-use, and recycling of materials on and off-site and prevent illegal waste activities. Materials will reused where possible following the hierarchy : Reuse in-situ >Re-use on-site > Reuse off-site > Recycling > Other recovery (energy) > Dispose								Knowledge gap on identification of building materials and their recyclability Ensuring 95% of waste is diverted from landfill.	Pre-contract engagement with demolition contractor	Pre-demolition audit to be Undertaken and monitored post-planning
	Aim to achieve 95% diversion from landfill	Brick and concrete waste will be processed off site to be used for groundworks Only Minor demolition works required. Waste to be reused as per site waste management plan.	Reinforcement steel can be recovered at the end of life in closed loop recycling. Considerations paid to WST 05/06	95% of the waste will be reused or recycled in line with the London Plan guidance.	Existing MEP plant retained Where existing services cannot be retained, they will be donated or sold to avoid sending to landfill.	95% of the waste will be reused or recycled in line with the London Plan guidance.	95% of the waste will be reused or recycled in line with the London Plan guidance.	Maximise reuse and recycling of demolition and waste			

Contd Table 2 - Key Circular Economy Commitments

Building "Layer" (as per GLA guidance)	Site	Substructure	Super-structure	Shell/Skin	Services	Space/Stuff	Construction Stuff	Summary	Challenges	Counteractios + who+ when	Plan to prove and quality
SECTION C: MANAGE WASTE											
Excavation waste (how waste from excavation will be managed)	Minimal excavation required for basement. This is for ramification of contaminated soil. Scheme has minimized excavation by reusing brownfields and existing structure	Retention of 13 storey, including plant, existing building and foundations avoids creating excavation waste that need to be managed	N/A	N/A	N/A	N/A	N/A	Excavated waste to be reused to its maximum potential.	Unexpected excavation required which increases waste	Continual monitoring during excavation stage	Site waste management plan
Construction waste (how waste arising from construction of the layers will be reused or recycled)	Standard sizes will be specified where feasible, to enable future reuse, e.g. no bespoke cutting of materials as this can make replacements difficult to obtain. Inline with BREEAM requirements the site will have a resource management plan Target set for diversion of waste from landfill (95%) Waste will be segregated on site and materials only to be delivered to site when needed, to prevent damage							Reduce waste arising during construction. Segregating waste and reducing waste going to landfill	Space availability for waste storage and segregation	Engagement with subcontractors	Design & Construction Strategy Site waste management plan Review at As Built stage and review of circular economy Targets set for BREEAM
Municipal and industrial waste (how the design will support operational waste management)	Refuse storage to be designed as per site waste management strategy (Wst 03) An operational waste management plan to be developed and followed	Sufficient storage space will be incorporated to enable waste to be segregated on site for collection for recycling	N/A	N/A	N/A	Space will be provided for segregation of recyclables and bulk items so that they can be collected for recycling.	N/A	Best practice waste management will be enabled through appropriate refuge storage	Local authority constraints to waste Collection Limited segregation for waste	Future improvement and flexibility will be acknowledged through providing space for waste service	Waste management strategy for Operational waste Compliance with Wst03 BREEAM

Appendix C – Table 3 : Bill of Materials

Layer	Element	Material Quantity (kg)	Material Intensity(kg/m2 Gross Internal Area)	Recycled Content (% by value)	Source of Information
Structure	Standard Foundation	1 800 000	94	Min. 20% ambition	WHOLE LIFE CYCLE ASSESSMENT
	Lowest floor construction	2 700 000	140		
	Basement excavation	3 300 000	172		
Shell/Skin	Concrete frames	3 200 000	167	Min. 20% ambition	
	Floors	17 000 000	885		
	Balconies	1 500 000	78		
	External walls	3 800 000	198		
Space	Internal finishes	1 400 000	73	Min. 20% ambition	
	Toxic/Hazardous/Contaminated Material Treatment	3 400 000	177		

Appendix D – Table 4 : Reporting Forms

RECYCLING AND WASTE REPORTING					
		Excavation Waste	**Demolition Waste**	**Construction Waste**	**Municipal Waste**
Total Estimate (t/m2 GIA)		0.35	0.01	0.15	3 905
% reused on or off site		>95%	>95%	>95%	>65%
% recycled or composted, on or off site					
% not reused or recycled	**% to landfill**	≤1% (Split between landfill and incineration to be confirmed by demolition contractor)	<5% (split between landfill and incineration to be confirmed by demolition contractor)	<5% (split between landfill and incineration to be confirmed by waste contractor)	Max 35% and no recyclable or compostable waste
	% to other management (e.g. incineration)				
Source of Information		Site Waste Management Plan	Pre-demolition waste audit.	Construction Logistics Plan BREEAM Pre-Assessment	Operational Waste Management Plan

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We help design teams within the built environment create sustainable spaces and buildings.

Our work encompasses all stages of a building’s lifetime; from advising developers on new development to landowners on improving their building stock. Our experience of each RIBA Stage enabling us to better advise on the other.

Environmental consultants, designers, engineers and technicians in the built environment.

Whether it be a single house extension, commercial property, school, or multi-residential masterplan; Love Design Studio will look to maximise the scheme’s sustainability credentials where most value is obtained.