CIRCULAR ECONOMY STATEMENT

330 Gray's Inn Road

Produced by XCO2 for 330 Gray's Inn Road Ltd.

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EXECUTIVE SUMMARY

This section provides a non-technical summary of the circular economy approach and commitments for the proposed scheme, 330 Gray's Inn Road.

PROPOSED DEVELOPMENT

The proposed development at 330 Gray's Inn Road is a mixed-use development, located within an area identified as the Knowledge Quarter in the London Borough of Camden.

The site is bound to the north in part by the UCL Ear Institute and in part by Wicklow Street and railway cuttings to the east; Swinton Street to the south and Gray's Inn Road runs along the site's western boundary. The site sits towards the centre of the growing Knowledge Quarter within the eastern section of the area.

The proposal entails the redevelopment of the former Royal National Throat, Nose and Ear hospital, comprising: retention of 330 Gray's Inn Road and a two storey extension for use as hotel; demolition of all other buildings, the erection of a part 13 part 9 storey building plus upper and lower ground floors for use as a hotel including a café and restaurant; covered courtyard; external terraces; erection of a 7 storey building plus upper and lower ground floors for use as office together with terraces; erection of a 10 storey building plus upper and lower ground floors for use as residential on Wicklow Street and office space at lower ground and basement floors; erection of a 5 storey building plus upper and lower ground floors for use as residential on Swinton Street and associated residential amenity space; together with a gymnasium; new basement; rooftop and basement plant; servicing; cycle storage and facilities; refuse storage; landscaping and other ancillary and associated works.

SUMMARY OF CIRCULAR ECONOMY COMMITMENTS

CONSERVE RESOURCES

The proposed scheme seeks to ensure that material and resource use is minimised as far as possible, in line with the first principle of circular economy: conserve resources and source ethically. Focus has been given to minimising the quantities of materials and other resources used, as well as ensuring materials will be sourced responsibly during construction.

ELIMINATE WASTE

The proposed scheme seeks to address this second core circular economy principle by ensuring the design is flexible and adaptable, thereby increasing the building's lifespan and minimising maintenance, and by aiming to reduce construction, demolition and excavation waste arisings.

MANAGE WASTE SUSTAINABLY

The proposed development will seek to implement the third core principle of circular economy by carefully managing demolition, construction and municipal waste to maximise recycling and reuse and minimise waste sent to landfill.

IMPLEMENTATION APPROACH

This report will be reviewed throughout all project stages, alongside the following corresponding reports:

- Whole Life Carbon Assessment
- Material Durability and Resilience Report
- Material Efficiency Report
- Climate Change Adaptation Strategy
- Design for Disassembly and Adaptability Report
- Sustainable Procurement Plan
- Site Waste Management Plan
- Operational Waste Management Plan

In line with GLA policy progress will be reviewed and reported at post construction stage.

INTRODUCTION

This section introduces the key principles that a circular built environment should adopt; provides a brief description of the development; summarises the process followed to produce this document; and outlines the project's circular economy aspirations.

This report has been produced to address Policy D3 'Optimising site capacity through the design led approach' and Policy SI7 'Reducing waste and supporting the Circular Economy', within the emerging Intend to Publish London Plan. In doing so it also address the local planning policies relating to circular economy. A full review of the relevant planning policy framework can be found within Appendix A.

Circular Economy Statements are required to inform early decisions and must be submitted at the following stages:

1. Draft Circular Economy Statement: submitted at outline/pre-application stage;
2. Detailed Circular Economy Statement: submitted at full planning application stage; and
3. Circular Economy Statement: submitted at post-completion stage.

CIRCULAR ECONOMY PRINCIPLES

Transitioning to a circular economy offers significant opportunities for meeting the needs of a growing population and reducing the adverse impacts on the environment, by re-thinking the way that we design our homes and buildings and consume resources.[1]

A circular economy a new economic model that stands in opposition to the current linear economy. Within a linear economy, materials are mined, manufactured used and thrown away. A circular economy seeks to keep resources in use and retain their value (Figure 1).

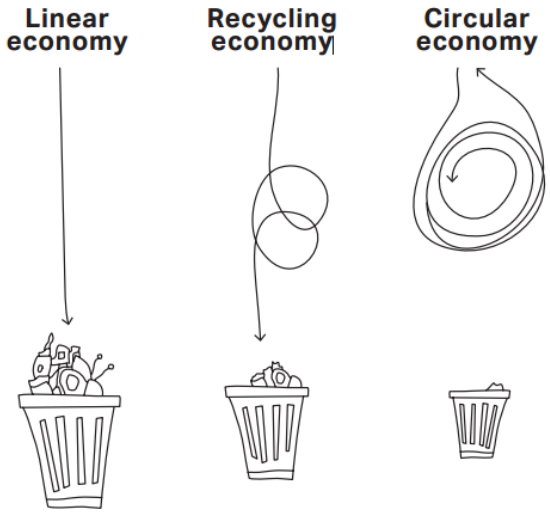

Figure 1: Linear, recycling and circular economic models (Circular Flanders)

The built environment sector is the largest user of materials and generator of waste in the economy. In London alone the sector accounts for 54% of waste and consumes 400 million tonnes of material each year. There are clear environmental benefits to adopting a circular economy approach in the building environment, including sending less waste to landfill and reducing the use of virgin materials. However, there are also social and economic benefits.

[1] 'Design for a Circular Economy: Primer' (Greater London Authority)

By implementing circular economy principles developers can protect their business from against the rising costs of materials and waste disposal.

LWARB estimates that if circular economy principles are successfully adopted it could contribute between £3 billion and 3% billion in growth for London by 2036 and create as many as 12,000 new jobs.[1]

This report is structured in accordance with the following core guiding principles and commitments, as identified in the GLA's 'Circular Economy Statement: Guidance (pre-consultation draft)':

1. Conserve resources, increase efficiency and source sustainably
    - Minimise the quantities of materials used
    - Minimise the quantities of other resource's use
    - Specify and source materials and other resource's responsibly and sustainably
2. Design to eliminate waste (and for ease of maintenance)
    - Design for longevity, adaptability or flexibility and reusability or recoverability
    - Design out construction, demolition, excavation and municipal waste
3. Manage waste sustainably and at the highest value
    - Manage demolition waste
    - Mange excavation waste
    - Manage construction waste
    - Manage municipal waste

These core principles circular economy are compared against current practice in Figure 2.

DESCRIPTION OF THE DEVELOPMENT

The proposed development at 330 Gray's Inn Road is a mixed-use development, located within an area identified as the Knowledge Quarter in the London Borough of Camden. It comprises mixed use scheme with both affordable and market housing, a hotel with leisure floorspace and office space to include flexible employment.

The development site has a small frontage along Gray's Inn Road and is otherwise enclosed by Swinton Street to the south and Wicklow Street to the north. The east side of the site is bordered by the TfL railway cutting.

Until recently, the site housed the Royal National Throat, Nose and Ear Hospital, who has vacated the site in 2020 and moved to a new location.

The proposal will deliver a residential led mixed-use development, comprising of both marketable and affordable housing across two blocks. The proposed development also comprises a hotel of approximately 10,000 m^2, a gym of circa 1,500 m^2 and 14,000 m^2 of new office space.

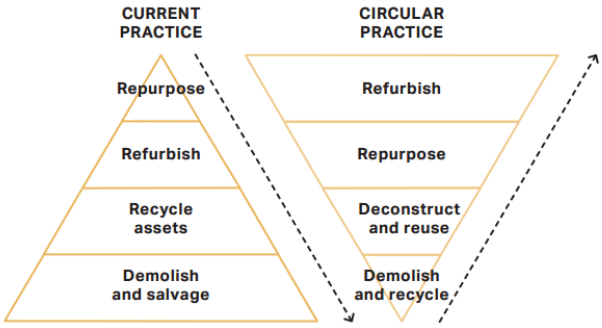

Figure 2: Current practice compared to circular practice (GLA)

METHOD STATEMENT

The circular economy principles outlined in this report, were regularly discussed by the team throughout design process, both at pre-application stage and detailed planning submission stage. This discussion included the following key actors:

- Planning consultant (Gerald Eve)
- Developer/client (Groveworld)
- Architect (Allford Hall Monaghan Morris)
- Structural engineer (WSP)
- MEP consultant (XCO2)
- Sustainability consultant (XCO2)

A contractor has not yet been appointed and there is no tenant on board at this stage, and therefore no facility management team can be consulted. Circular economy will be discussed with the contractor once they have been appointed, and the tenant when they are on board.

Circular economy was reviewed, alongside whole life carbon, at specific workshops (facilitated by XCO2) and at fortnightly design team meetings. Draft versions of this report have been reviewed and commented on by the design team. This process included the following steps.

Pre-Application Stage:

- Initial workshop to identify strategic approach and integration into project brief (see 'Strategic approach' below);
- Confirmation of metrics and targets (see 'Circular Economy Strategy' and 'Key Commitments' table);
- Identification of supporting information and calculations that will be required (including whole life carbon assessment and BREEAM assessment).

Full Application Stage:

- Follow up workshops (at design team meetings) to confirm strategic approach;
- Confirmation of key performance metrics and targets to report against;
- Identification of potential challenges and counter-actions (as listed in Key Commitments' table);
- Engagement with supply chain (where possible);
- Calculations, research and data gathering.

In line with GLA policy the team are committed to reviewing and updating this Circular Economy Statement at post completion stage. This process will involve the main contractor, design team, client/developer, subcontractors, suppliers and tenants' FM teams (if available). The following actions will be carried out:

- Update to report (if required)
- Confirmation of compliance
- Details of outcomes and lessons learnt

As outlined in the accompanying Sustainability Statement the development will achieve a BREEAM 'Excellent' rating. This includes the following credits, which relate to circular economy:

- Mat 05: Material Durability and Resilience
- Mat 06: Material Efficiency
- Wst 05: Adaptation to climate change
- Wst 06: Design for Disassembly and Adaptability

In addition to the whole life carbon and circular economy workshops, a BREEAM-specific pre-assessment workshop was held with the team to review the targeted credits (including those listed above) and ensure that the relevant items were included in the project brief and specifications.

CIRCULAR ECONOMY ASPIRATIONS

The project team interpret circular economy in the following way:

- Reduce material use by optimising the design and reusing demolition waste on-site where possible;
- Source materials responsibly;
- Design for adaptability, durability, resilience and longevity;
- Implement waste minimisation targets during demolition and construction;
- Ensure there is sufficient space for storage and segregation of operational waste.

These aspirations have been developed into a strategic approach (summarised in the following section) as well as a specific set of key commitments (summarised in Appendix C).

STRATEGIC APPROACH

The project team met early in the design process to discuss the sustainability goals and aspirations for the project; the outcomes from these discussions can be found in the accompanying Sustainability Statement.

This process included a consideration of the overarching circular economy strategy for the project, as well as the relevant sections of BREEAM.

During this process the team utilised the decision tree shown in Figure 3 to assist with defining the strategic approach for the project. It is expected that this approach will change and evolve as the project progresses through the RIBA Stages.

The guiding strategic approaches for the existing site and buildings, and the proposed new development can be found Appendix B.

In summary the following approaches will be used for existing buildings and structures:

- Retain and refurbish the original historic hospital building on Gray's Inn road;
- Deconstruct all other buildings and reuse as many materials as possible on site;
- Recycle and repurpose as much demolition waste as possible.

The following approaches will be used for the new development:

- Longevity through the use of durable and resilient materials;
- Adaptability and flexibility by ensuring internal spaces can be reconfigured for multiple uses;
- Reusability and recoverability of as many building parts and systems as possible.

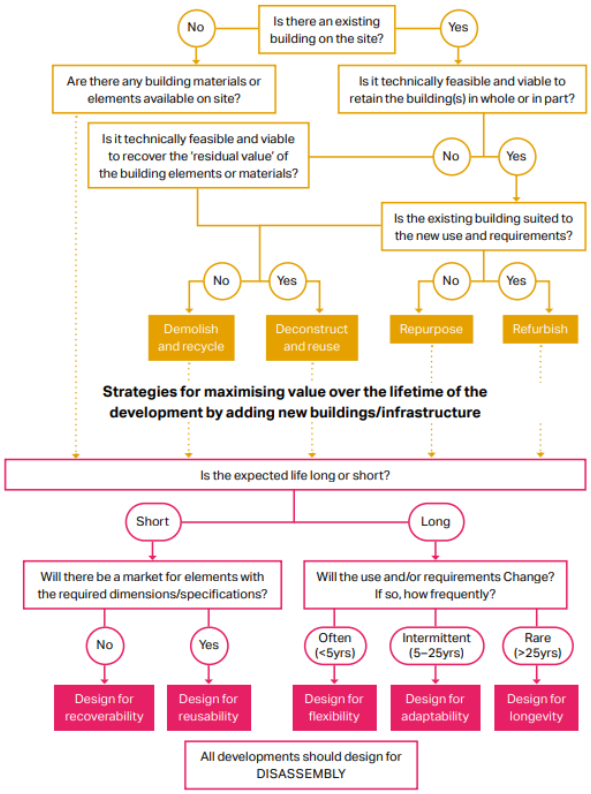

Figure 3: Circular Economy Decision Tree (GLA)

CIRCULAR ECONOMY STRATEGY

This section provides a detailed description of how circular economy principles will be implemented; this includes specific measures to conserve resources, eliminate waste and manage waste sustainably. The targets discussed in this section are presented in the Key Commitments Table in Appendix C.

DESIGN TO CONSERVE RESOURCES

The proposed scheme seeks to ensure that material and resource use is minimised as far as possible, in line with the first principle of circular economy: conserve resources and source ethically. As shown below, this focus has been given to minimising the quantities of materials and other resources used, as well as ensuring materials will be sourced responsibly during construction.

MINIMISING QUANTITIES OF MATERIALS

In this instance it is not possible to refurbish the existing building as it is not fit for purpose. However, some of the existing piles will be re-used to support the new raft foundation; the existing basement walls will also be re-used, which will reduce the quantity of new concrete that will ned to be brought to site.

Demolition works are likely to take place in two phases: soft strip and structural demolition. Soft strop is the removal of non-structural elements; including the safe removal of asbestos within the existing building by a specialist contractor. Structural demolition includes removal of the concrete frame, and masonry and glass cladding.

Measures to minimise demolition waste are outlined in more detail in the 'Design to Eliminate Waste' section of this report.

It is not anticipated that soft strip demolition works will yield any waste that can be salvaged and reused in the new building. The structural demolition works will, however, create waste streams that can be reused within the proposed scheme; thereby, reducing the quantities of new materials brought to site. For example, concrete from the existing building's frame will be crushed, grated and stockpiled on site prior to being reused in constructing a piling mat and berm. This will reduce the amount of new concrete that needs to be brought to site.

The proposed scheme will be design to utilise materials in an efficient manner; this process will be guided by a Material Efficiency Report, which will be produced for the development's BREEAM assessment.

Material efficiency measures seek to optimise the use of materials within building design, procurement, construction, maintenance and end of life; and ultimately reduce the quantities of new materials used. BREEAM requirements state that this report is a live document that is updated at each stage of the project.

The proposed scheme will utilise the following measures to ensure materials are use efficiently and minimise the quantities of new materials brought to site:

- Design to standard materials dimensions to reduce off-cuts
- Utilise materials with a high recycled content
- Participate in take-back schemes
- Rationalise structural design to reduce the volume of structural materials
- Avoid over specification
- Optimise foundation design
- Utilise pre-assembled / pre-fabricated elements and/or off-site manufacture

MINIMISING QUANTITIES OF OTHER RESOURCES

The proposed scheme is sited on brownfield land, thereby minimising disruption to the existing landscape.

The contractor will be required to set targets for energy and water used during construction and put in place measures to minimise consumption of these resources; these will include:

- Use of alternatives to diesel / petrol powered equipment where possible;
- The incorporation of sources of renewable energy, to offset the use of main utilities;
- Selection and specification of energy efficient plant and equipment wherever viable; and
- Implementation of staff based initiatives such as turning off plant and equipment when not in use, both onsite and within site offices.

With regards to building operation, the scheme has been designed in line with the GLA's energy hierarchy in order to minimise operational energy use and carbon emissions. The scheme has adopted a fabric first approach to minimise energy demand, including a highly efficient thermal envelope. Further details can be found in the accompanying Energy Strategy.

As stated in the Sustainably Statement, the scheme has been designed to reduce water consumption to less than 105 litres per person per day. Further water-saving measure include installation of pulsed water meters and a building-wide water leak detection system.

RESPONSIBLE SOURCING

Anticipated construction material quantities will be estimated are shown in Table 1. As part of the BREEAM assessment the contractor will be required to source materials in accordance with a Sustainable Procurement Plan. BREEAM requirements state that this must guide procurement throughout the project and include the following:

- Identification of risks and opportunities against a broad range of social, environmental and economic issues.
- Aims, objectives and targets to guide sustainable procurement activities.
- A strategic assessment of sustainably sourced materials available locally and nationally.
- A policy to procure materials locally where possible.
- Procedures to check and verify that the sustainable procurement plan is being implemented and adhered to (for example setting out measurement criteria, methodology and performance indicators to assess progress and demonstrate success).

As such, there will be a preference to source materials locally where feasible. Other materials will be sourced in accordance with the following guidance:

- 100% of timber will be FSC or PEFC certified.
- 100% concrete will be BES 6001 certified (Responsible Sourcing of Construction Products).
- Where possible steel will be sourced from suppliers rated under the CARES Sustainable Constructional Steel Scheme.
- Other major construction materials will be certified under an Environmental Management System (EMS) such as ISO 14001.

Table 1: Estimates of key construction material quantities

Material	Approx. Quantity
Bulk Excavation	34,500 m^3
Concrete (sub-structure)	10,500 m^3
Concrete (super-structure)	18,000 m^3
Steel (structure & reinforcement)	3,600 tonnes
Cladding	14,000 m^2
Glazing	7,000 m^2
Roof finishes	2,000 m^3
Internal partitioning	12,000 m^2
Ceilings	14,000 m^2

DESIGN TO ELIMINATE WASTE

The proposed scheme seeks to address this second core circular economy principle by ensuring the design is flexible and adaptable, thereby increasing the building's lifespan and minimising maintenance, and by aiming to reduce construction, demolition and excavation waste arisings.

DESIGN FOR LONGEVITY, ADAPTABILITY/FLEXIBILITY AND REUSABILITY/RECOVERABILITY

As part of the BREEAM assessment two key documents pertaining to flexibility and adaptability will be produced:

1. Design for Disassembly and Adaptability Report
2. Climate Change Adaptation Strategy

The buildings have been designed to facilitate major refurbishment, including façade replacement without compromising the structural design.

It will be possible to remove and replace all major items of plant without needed to demolish sections of wall or floor. Lifting beams and hoists will be incorporated into the design where necessary. Further information can be found within the Plant Replacement Strategy.

The structural design of the hotel will allow for reconfiguration of the internal environment to accommodate changes in working practices and business models; for example, by allowing front of house areas to be reconfirmed, and multiple smaller rooms to be combined into larger rooms.

The design of the services within the proposed scheme considers accessibility to local services, such as local power and data infrastructure. This will allow for ease of maintenance as well as the potential to upgrade these services more easily at a future date if required. Moreover, the office spaces will be lab-enabled, therefore an allowance is included in the building services design to ensure spaces can be adapted for lab use.

A Material Durability Report is being undertaken, which outlines measures taken to ensure that vulnerable parts of the building are protected from damage. This includes measures to protect against the effects of high pedestrian traffic; internal vehicular/trolley movement and potential vehicular collision with the external building façade. This report also outlines appropriate design and specification measures to limit material degradation due to environmental factors; thereby improving the longevity of materials used in the building façade and roof, as well as external hard landscaping.

Furthermore, a systematic risk assessment will be carried out to identify and evaluate the impact of climate change on structural and fabric resilience. The aim of this study will be to ensure that building remains functional for as long as possible by mitigating risks posed by extreme weather conditions arising from future climate change.

DESIGN OUT CONSTRUCTION, DEMOLITION, EXCAVATION AND MUNICIPAL WASTE ARISING

The demolition contractor will be required to ensure that at least 95% of all demolition waste is either recycled directly on site or processed for off-site reuse and recycling. Further details (including estimated demolition waste quantities) can be found in the Pre-Demolition Waste Audit.

As noted in the previous section ('Conserve Resources') it is anticipated that some of the concrete materials recovered from the demolition process will be crushed, graded and stockpiled on site, prior to reuse in the piling mat and berm. Bricks will also be sorted and stored on site prior to reuse.

The principle contractor will be required to ensure that no more than 6.5 tonnes of construction waste is generated and that at least 95% of construction waste is diverted from landfill.

A Site Waste Management Plan (SWMP) will be prepared for the project, in accordance with SWMP Regulations and BREEAM requirements.

The principle contractor will follow the UK Government's 'Waste Management Plan for England 2013', the 'Mayor's Municipal Waste Management Strategy - Rethinking Rubbish in London, and the 'Mayor's Business Waste Management Strategy' in order to reduce the amount of waste generated.

The following measures will be investigated to facilitate the minimisation of waste generation:

- Agreements with material suppliers to reduce the amount of packaging, to use reusable packaging or to participate in a packaging take-back scheme;
- Implementation of a 'just-in-time' material delivery system to avoid materials being stockpiled, which would increase the risk of their damage and disposal as waste;
- Attention to material quantity requirements, to avoid over-ordering and generation of waste materials;
- Re-use of materials wherever feasible;
- Segregation of waste at source where practical; and
- Re-use and recycling of materials off-site, where re-use on-site is not practical (e.g. through use of an offsite waste segregation facility and re-sale for direct re-use or re-processing).

MANAGE WASTE SUSTAINABLY

The proposed development will seek to implement the third core principle of circular economy by carefully managing demolition, construction and municipal waste to maximise recycling and reuse and minimise waste sent to landfill.

DEMOLITION AND CONSTRUCTION WASTE

In order to reduce potential risks throughout the demolition and construction phases of the proposed development, the following measures will be implemented:

- Skips will be colour coded and signposted to reduce risk of cross contamination;
- Skips will be covered to prevent dust and debris blowing about the site and immediate environment;
- Burning of waste or unwanted materials will not be permitted on-site;
- All potentially hazardous materials will be properly sealed and securely stored when not used;
- Food waste from the welfare facilities on-site will be suitably packaged and stored for collection by the authorities to reduce the risk of infestation by pests or vermin. Where there is a local infestation then the local environmental health officer will be consulted about the action to be taken; and
- All hazardous materials, including chemicals, cleaning agents, solvents and solvent containing products will be properly sealed in sealed containers at the end of each day prior to storage in appropriately protected and bunded storage areas.

It is anticipated that at least 95% of demolition waste arisings will be reused and recycled following the various Demolition Protocols, Waste Resource Action Programme and the waste hierarchy.

The demolition will generate steel, aluminium and copper from the building's framing, cladding, window frames and pipework. 100% of this will be recovered for recycling.

Bricks, recovered from the demolished buildings, will be reused in the external landscaping.

In accordance with government targets, the demolition and construction contractor will be required to maximise the proportion of recycled materials, including reclaimed aggregates.

The disposal of all waste or other materials removed from the site will be in accordance with the requirements of the Environment Agency (EA), Control of Pollution Act 1974 (COPA), Environment Act 1995, Special Waste Regulations 1996 and the Duty of Care Regulations 2003. Where materials cannot be recycled or re-used on site, the Principal Contractor will identify opportunities for potential re-use of materials off-site.

Prior to commencing the soft strip works advanced building surveys will be carried out. These will include a Pre-Demolition Waste Audit, as well as an asbestos and hazardous materials survey, in accordance with the Hazardous Waste Regulations and the Control of Asbestos Regulations.

Once the asbestos removal work has been completed the main soft strip of all fixtures and fittings within the existing building will be carried out. Soft strip demolition works will be followed by structural demolition.

Topsoil from excavation activities, will be given special attention due to its high value. No topsoil will be sent to landfill.

Although the vast majority of construction and demolition waste will be recycled, some waste will be sent to landfill, the majority of this will be hazardous waste (asbestos). The applicant has contacted local landfill facilities and can confirm that they have capacity to receive this waste.

EXCAVATION WASTE

Due to the nature of the development, which includes a substantial two storey basement, it will not be possible to minimise generation of excavation waste. However, the contractor will be required to ensure that 95% of excavation waste is diverted from landfill and that no topsoil will be sent to landfill. Excavated material will be graded and processed accordingly.

MUNICIPAL WASTE

Full details of proposed management strategy for operational waste can be found in the accompanying Operational Waste Management Plan.

Separate waste storage areas will be provided for each building use: office, gym, hotel and residential. Each bin store will include a clearly labelled space for storage of recyclable waste, prior to collection. Waste stores will be adequately sized and accessible to building users / FM teams.

In the case of the residential and hotel buildings, additional space will be provided for storage of food waste, prior to collection for composting.

The above will be provided in addition to storage space for general/landfill waste. All waste storage will be sized in accordance with local planning policy and BREEAM requirements.

END-OF-LIFE STRATEGY

This section describes the strategy for how the proposed scheme's design and construction will reduce material demands and enable building materials, components and products to be disassembled and reused at the end of their useful life.

The proposed development has been designed for repurpose and independent replacement of individual elements, based on their design life periods.

The building's structure has been designed with an indicative design life of 50 years (based on current British Standards).

The building's envelope has been designed for a minimum 60 years for the finished primary cladding system and 30 years for secondary components.

The following principles will be implemented in order to ensure materials can be recovered in as high a value state as possible at end of life.

DURABILITY

Durable materials will be specified in all areas that are subject to high pedestrian movement, and/or trolley/vehicle movement. This will extend the lifespan building materials, in particular those that are exposed, thereby reducing the need for replacement over the building's lifecycle.

This is discussed in more detail in the Design for Durability and Resilience report, which is being produced to support the BREEAM 2018 assessment.

EXPOSED AND REVISABLE CONNECTION

Exposed and reversible connections will be utilised where possible to facilitate disassembly and ensure materials can be recovered in a high value state.

LAYER INDEPENDENCE

Where possible, and the complexity and scale of the project must be considered here, building elements and components with different lifespans will form independent layers. This will ensure those layers with shorter lifespans can be replaced without damage to layers which have longer lifespans. This will include the following principal layers:

- Structure: foundation and load-bearing elements
- Skin: exterior surfaces
- Services
- Space plan: the interior layout
- Stuff: furnishings and carpets

STANDARDISATION

Standard-size materials will be used where possible as these are able to accommodate multiple uses, reuse and upgrading.

Furthermore, standard types of connections will be used as these can be separated and reused more easily.

It is highly likely that modular elements will be included, although the full extent of these will be developed further at the next stage of design. Modularity allows elements to be slotted together or taken apart to promote disassembly and flexible environments, as well as reducing construction waste. The feasibility of inclusion of modular elements will be evaluated post planning.

APPENDIX A: POLICY FRAMEWORK

INTEND TO PUBLISH LONDON PLAN

The current 2016 London Plan still forms part of the Development Plan. However, the Intend to Publish London Plan, last updated in December 2019, is a material consideration in planning decisions. The New London Plan is scheduled to be published late 2020.

The proposed development seeks to comply with the relevant energy policies within the Intend to Publish London Plan, where feasible. This Circular Economy Statement outlines how these policies will be met by the proposed development.

The emerging Intend to Publish London Plan has introduced several new policy requirements that consider circular economy principles.

Policy D3 'Optimising site capacity through the design led approach' and Policy SI7 'Reducing waste and supporting the Circular Economy' set clear policy objectives to:

- Create high quality buildings that consider practicality of use, flexibility, safety and building lifespan;
- Encourage the use of appropriate construction methods and robust materials;
- Take into account the principles of the circular economy and aim for high sustainability standards;
- Ensure that products and materials are retained at their highest value for as long as possible;
- Improve resource efficiency;
- Minimise waste (both during construction and building operation); and
- Meet or exceed the following targets:
    - Zero biodegradable/recyclable waste to landfill by 2026;
    - Municipal waste recycling target of 65% by 2030;
    - Reuse/recycling or recovery of 95% of construction and demolition waste;
    - The beneficial use of at least 95 per cent of excavation waste.

Policy SI7 requires developments that are referable to the Mayor of London to submit a Circular Economy Statement as part of a planning application; it 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.*

Policy SI7 encourages London boroughs to set their own lower local thresholds for Circular Economy Statements.

Circular Economy Statements must adhere to the minimum content requirements stated in 'Circular Economy Statement: Guidance Pre-Consultation Draft' in order to be considered 'compliant'.

Circular Economy Statements will be checked for:

- Completeness
- Technical validity
- Level of ambition

Furthermore, Policy SI7 states that referable applications must demonstrate how performance of

the Circular Economy Statement will be monitored and reported, including confirmation of:

- What actually happened
- How this is different from what was planned
- What it differed and what the key learnings were

LOCAL PLANNING POLICY (LONDON BOROUGH OF CAMDEN)

Circular economy is not referenced in the Camden Local Plan; however 'CPG3: Sustainability' (Camden Planning Guidance) includes a chapter on the sustainable use of materials (chapter 8), which is closely allied to the general principles of circular economy. It is therefore considered to be a local planning policy requirement for development to demonstrate the following:

1. Mange existing resources and, where the retention of a building is not possible, implement the waste hierarchy (see Figure 4) to reduce the quantity of waste produced;
2. Specify materials using the Building Research Establishment's Green Guide to Specification;
3. Ensuring that materials are responsibly sourced;
4. Minimising the harmful effects of some materials on human health; and
5. Ensuring the specified materials are robust and sensitive to the building type and age.

The council expect developments to achieve the following targets:

All developments should aim for at least 10% of the total value of materials used to be derived from recycled and reused sources. This should relate to the WRAP Quick Wins assessments or equivalent … Special consideration will be given to heritage buildings and features to ensure that their historic and architectural features are preserved.

Major developments are anticipated to be able to achieve 15-20% of the total value of materials used to be derived from recycled and reused sources.

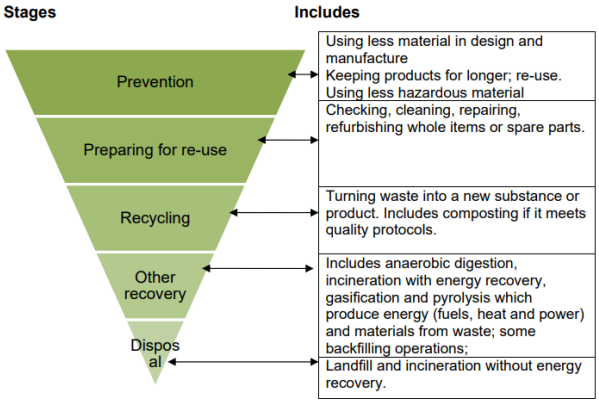

Figure 4: The waste hierarchy

UK GREEN BUILDING COUNCIL GUIDANCE

Although not planning policy, it is useful to consider the UK Green Building Council's (UKGBC) report on circular economy: 'Circular economy guidance for construction clients: how to practically apply circular economy principles at the project fief stage'. This sets out the following principles, which complement the regional and local planning policies:

- Reuse
    - Reuse the existing asset
    - Recover materials and products on site or from another site
    - Share materials or products for onward reuse
- Design buildings for optimisation
    - Design for longevity
    - Design for flexibility
    - Design for adaptability
    - Design for assembly, disassembly and recoverability
- Standardisation or modularisation
- Servitisation and leasing
- Design and construct responsibly
    - Use low impact new materials
    - Use recycled content or secondary material
    - Design out waste
    - Reduce construction impacts

APPENDIX B: STRATEGIC APPROACH TABLE

Aspect	Phase / Building / Area	Steering Approach	Explanation	Targets	Supporting Analysis / Studies / Surveys / Audits
New development	Whole development	Sustainable sourcing	Contractor to operate a Sustainable Procurement Plan. Materials to be sustainable sourced. Local suppliers to be preferred where possible to reduce material transport distances.	100% FSC/PEFC certified timber 100% concrete BES 6001 certified (Responsible Sourcing of Construction Products) Where possible steel to be sourced from suppliers rated under the CARES Sustainable Constructional Steel Scheme Other materials to be certified under an Environmental Management System (EMS) such as ISO 14001 Concrete to contain at least 40% recycled cement replacement (GGBS). Steel to contain high recycled content.	BREEAM Pre-Assessment Sustainable Procurement Policy
		Material transparency	Prioritise specification of materials with valid environmental product declarations (EPDs)	Aim to specify at least 20 products with EPDs	BREEAM Pre-Assessment Sustainable Procurement Policy
		Minimise construction waste	Contractor to record total construction waste generated and how this waste will be disposed of. Measures to be implemented to manage and reduce construction waste. Contractor to prioritise suppliers with take-back schemes,	≤6.5 tonnes construction waste (excluding excavation waste) / 100 m^2 GIA ≥95% construction waste diverted from landfill All energy and water consumption during construction will be monitored. Contractor to implement measures to reduce energy and water consumption.	BREEAM Pre-Assessment Site Waste Management Plan Construction Management Plan

Aspect	Phase / Building / Area	Steering Approach	Explanation	Targets	Supporting Analysis / Studies / Surveys / Audits
		Design for durability	Durable, long-lasting materials will be utilised.	Durable external materials to be used to limit effects of environmental degradation. Measures to be implemented to protect finishes internally and externally.	BREEAM Pre-Assessment Material Durability Report
		Optimise material use	Materials to be used efficiently to reduce wastage on site.		BREEAM Pre-Assessment Material Efficiency Report
		Functional adaptability	Design for adaptability and flexibility - to increase building lifespan.		BREEAM Pre-Assessment Design for Disassembly and Adaptability Report
		Reuse and recycling at end of life	Design for disassembly and deconstruction – to ensure materials are retained in a high value state.	Stamp and grade structural steel Prioritise mechanical fixings over welded/chemical fixings to assist with deconstruction. Design in layers.	BREEAM Pre-Assessment Design for Disassembly and Adaptability Report
		Minimise speculative finishes	Avoid installing finishes that could be removed by future tenants.	Finishes limited to reception / show areas or pre-agreed with tenants.	
Existing site	Existing buildings and landscaping	Retain, reuse and refurbish	The original hospital building on Gray's Inn Road will be retained and refurbished as part of the proposed works. Existing façade, ground floor, upper floors and structure will be retained and reused.		Architectural specification and feasibility study Whole life carbon report Heritage assessment
			Existing basement will be reused and where possible existing piles will be reused.		Architectural specification and feasibility study Structural specification and drawings Whole life carbon report

Aspect	Phase / Building / Area	Steering Approach	Explanation	Targets	Supporting Analysis / Studies / Surveys / Audits
		Maximise recovery, reuse and recycling of demolition waste	Concrete will be crushed, grated and stockpiled on site prior to being reused. Bricks will be sorted and stored on site prior to reuse. Metal, timber, glass and plastic will be separated on site prior to removal and recycling.	≥95% of demolition waste to be reused and/or recycled.	Pre-demolition waste audit Site Waste Management Plan Construction Management Plan
	Existing buildings	Maximise reuse of existing building components and systems	Where possible functional equipment of value will be donated/sold for reuse off-site, rather than sent to landfill.		Pre-demolition waste audit
Municipal waste during operation	Whole development	Storage and segregation of operational waste	On-site bin stores will accommodate appropriate bins for segregation and storage of recyclable, compostable and general landfill waste.		Operational Waste Management Strategy BREEAM Pre-Assessment
		Encourage recycling	Storage areas for recyclable waste to be clearly signed and accessible to all building users.		Operational Waste Management Strategy BREEAM Pre-Assessment
		Reduce/minimise water waste	Install pulsed water meters. Install water leak detection systems and local shut-off to WC areas to limit water loss via leaks.		MEP specification BREEAM Pre-Assessment

APPENDIX C: KEY COMMITMENTS

	Site	Substructure	Superstructure	Shell/skin	Services	Space	Stuff	Construction
	Section A: Conserve resources							
Minimising the quantities of materials used		Foundations and piling mat will include crushed concrete from demolition waste to reduce the quantity of new concrete brought to site.	The building will utilise an efficient form to minimise quantities of new materials. Material efficiency measures will optimise the use of materials within building design, procurement, construction, maintenance and end of life; and ultimately reduce the quantities of new materials used.					
Minimising the quantities of other resources used	The scheme will utilise brownfield land.				The scheme will use the GLA's energy hierarchy to minimise operational energy use and has been designed to minimise water consumption.			The contractor will be required to set targets for energy and water used during construction and put in place measures to minimise consumption of these resources.
Specifying and sourcing materials responsibly and sustainably		100% of timber will be FSC or PEFC certified; 100% concrete will be BES 6001 certified (Responsible Sourcing of Construction Products); where possible steel will be sourced from suppliers rated under the CARES Sustainable Constructional Steel Scheme; other major construction materials will be certified under an Environmental Management System (EMS) such as ISO 14001						

	Site	Substructure	Superstructure	Shell/skin	Services	Space	Stuff	Construction
	Section B: Design to eliminate waste (and for ease of maintenance)							
Design for reuse, recovery, longevity, adaptability and flexibility		Foundations and basement levels will facilitate a range of uses.	A systematic risk assessment will be carried out to identify and evaluate the impact of climate change on structural and fabric resilience	The building has been designed to facilitate major refurbishment without compromising the structural design. Vulnerable parts of the building will be protected using durable finishes, raised curbs and bollards.	It will be possible to remove and replace all major items of plant without needed to demolish sections of wall or floor. Lifting beams and hoists will be incorporated into the design where necessary. Local services will be adaptable to a range of uses.	The structural design of the hotel will allow for reconfiguration of the internal environment to accommodate changes in working practices and business models.		
Designing out construction, demolition, excavation and municipal waste arising		Crushed concrete (from demolition works) to be reused on site in substructure.	A Site Waste Management Plan (SWMP) will be prepared for the project. The principle contractor will follow the UK Government's 'Waste Management Plan for England 2013', the 'Mayor's Municipal Waste Management Strategy - Rethinking Rubbish in London, and the 'Mayor's Business Waste Management Strategy' in order to reduce the amount of waste generated.					

	Site	Substructure	Superstructure	Shell/skin	Services	Space	Stuff	Construction
	Section C: Manage waste							
Demolition waste	>96% of demolition waste to be reused/recycled							
Excavation waste	>95% of excavation waste to be reused/recycled							
Construction waste		>95% of construction waste to be reused/recycled						
Municipal waste					Adequate space will be provided for storing and segregating waste streams. >65% of municipal waste to be recycled or composted.			

	Summary	Challenges	Counter Actions (who and when)	Plan to prove and quantify
	Section A: Conserve resources			
Minimising the quantities of materials used	Material efficiency measures will be used to reduce the quantity of new materials procured.	To be reviewed and updated at the next project stage once a contractor has been appointed.	To be reviewed and updated at the next project stage once a contractor has been appointed.	Material Efficiency report will be produced and implemented post-planning.
Minimising the quantities of other resources used	Building operational energy and water will be reduced. The contractor will take steps to monitor and reduce construction site energy/water use.	To be reviewed and updated at the next project stage once a contractor has been appointed.	To be reviewed and updated at the next project stage once a contractor has been appointed.	Operational energy and water targets will be implemented via planning condition and reviewed post-construction. Contractor to appoint nominated individual to monitor construction energy and water use.
Specifying and sourcing materials responsibly and sustainably	Materials to be responsibly sourced by the contractor.	To be reviewed and updated at the next project stage once a contractor has been appointed.	To be reviewed and updated at the next project stage once a contractor has been appointed.	Contractor to implement Sustainable Procurement Plan outlining responsible sourcing measures.
	Section B: Design to eliminate waste (and for ease of maintenance)			
Design for reuse, recovery, longevity, adaptability and flexibility	The building will be designed to be flexible and adaptable to multiple uses.	To be reviewed and updated at the next project stage once a contractor has been appointed.	To be reviewed and updated at the next project stage once a contractor has been appointed.	A Functional Adaptability Study and Climate Change Adaptation Strategy will be produced and implemented post-planning.
Designing out construction, demolition, excavation and municipal waste arising	Crushed concrete will be reused in foundations. Contractor to implement measures to reduce construction waste.	To be reviewed and updated at the next project stage once a contractor has been appointed.	To be reviewed and updated at the next project stage once a contractor has been appointed.	A Site Waste Management Plan documenting measures to reduce construction, demolition and excavation waste will be produced and implemented post-planning.
	Section C: Manage waste			
Demolition waste	>96% of demolition waste will be diverted from landfill (reused/recycled)	To be reviewed and updated at the next project stage once a contractor has been appointed.	To be reviewed and updated at the next project stage once a contractor has been appointed.	The main contractor will be required to monitor and record construction, demolition and excavation waste quantities and recycling rates. This will be documented in the Site Waste Management Plan.
Excavation waste	>95% of demolition waste will be reused/recycled.	To be reviewed and updated at the next project stage once a contractor has been appointed.	To be reviewed and updated at the next project stage once a contractor has been appointed.	

Construction waste	>95% of construction waste will be recycled.	To be reviewed and updated at the next project stage once a contractor has been appointed.	To be reviewed and updated at the next project stage once a contractor has been appointed.	
Municipal waste	>65% of municipal waste will be recycled/composted.	To be reviewed and updated at the next project stage once a contractor has been appointed.	To be reviewed and updated at the next project stage once a contractor has been appointed.	Provision of adequate storage space for operational waste is expected will be implemented via a planning condition.

APPENDIX D: REPORTING FORMS

Please refer to the Whole Life Carbon (WLC) Assessment spreadsheet (submitted as part of this application) for confirmation of material quantities and percentages of recycled content.

RECYCLING AND WASTE REPORTING						
Category	**Total estimate**	**Of which...**				**Source of information**
	Quantity	**% reused or recycled on-site**	**% reused and recycled off-site**	**% not reused or recycled**		
				% to landfill	**% to other (e.g. incineration)**	
Excavation waste	To be confirmed in Pre-Demolition Waste Audit	≥95% (The split between reuse on- and off-site is not currently known, this will be determined by the main contractor)		0%	<5%	Site Waste Management Plan Construction Management Plan Pre-Demolition Waste Audit
Demolition waste	To be confirmed in Pre-Demolition Waste Audit	Crushed concrete will be reused on-site.	≥95% (100% of metalwork will be recycled)	<5%		Site Waste Management Plan Construction Management Plan Pre-Demolition Waste Audit
Construction waste	No more than 6.5 tonnes per 100m^2 of GIA	n/a	≥95%	<5%		Site Waste Management Plan Construction Management Plan Pre-Demolition Waste Audit
Municipal waste	As outlined in Operational Waste Management Strategy	n/a	>65%	<35% (No recyclable or compostable waste will be sent to landfill/incineration)		Operational Waste Management Strategy

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