Circular Economy Statement

RIBA Stage 2

Royal Property Holding Ltd

1 & 2 Longwalk Road

Hayes
Uxbridge
UB11 1DB
UB11 1BA
London Borough of Hillingdon

Version	Revision	Date	Author	Reviewer	Project Manager
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Introduction

1.0 Introduction

This Circular Economy Statement has been prepared by SRE on behalf of Royal Property Holding Ltd (the Client) to demonstrate the sustainability measures incorporated into the design of the 1 & 2 Longwalk Road, Stockley Park, Uxbridge, UB11 1DB and UB11 1BA (the Proposed Development). With aims of satisfying London Plan policies GG5 and SI7 and the Greater London Authority March 2022 guidance, the Circular Economy Assessment outlines how the adoption of Circular Economy principles throughout the design, demolition, construction, operation, and end-of-life phases of the Proposed Development has been considered at all stages of the Proposed Development's life cycle.

The figures within this report may be based on indicative modelling and an assumed specification outlined within the relevant sections. Therefore, this modelling may not represent the as built emission or energy use of the Proposed Development and further modelling may need to be undertaken at detailed design stage to confirm precise performance figures.

1.1 The Site and Proposed Development

The Proposed Development is for "*the demolition of the existing buildings; redevelopment of the site to provide two commercial units for flexible industrial, storage and distribution uses (Use Classes B2/B8/E(g)(iii)), with ancillary office space, yard areas, servicing, vehicular and cycle parking; hard and soft landscaping and associated works".* Overall, the proposed gross internal floor area (GIA) of the new development is 11,006 m^2.

The Proposed Development is located in Stockley Park, in London Borough of Hillingdon, which is situated in close proximity to Heathrow International Airport. The Park sits adjacent to the A408 dual carriageway, providing direct access to junction 4 of the M4 motorway. Junction 15 of the M25 is 2 miles to the west, providing access to the wider motorway network.

The Site is approximately 25,337 sqm in size. Figure 1 demonstrates the location of the Proposed Development. The Site Plan for the Proposed Development is shown in Appendix A.



Figure 1 – Location of the Proposed Development (Google Maps)

The Proposed Development will aim to deliver lower energy and water use, lower carbon emissions and lower operational costs than a Building Regulations Compliant design through a 'fabric first' approach to the building design, in line with best practice. The site will also be assessed in accordance with the RICS 'Whole Life Carbon Assessment for the Built Environment and will incorporate Circular Economy principles within the overall design, procurement, and construction process, following the March 2022 Greater London Authority (GLA) Circular Economy guidance[1] as a methodology.

In advance of the submission of the full planning application, this Circular Economy Statement was prepared by SRE and reviewed by the Design Team within a Circular Economy workshop held on 11th August 2026. Written and verbal feedback was received, which has been taken into consideration in the preparation of the final Circular Economy Statement. Post-meeting notes from this workshop can be found in Appendix B.

The following strategic approach is to be adopted at each key development phase, as shown in Table 1.

[1] Mayor of London, London Plan Guidance-Circular Economy Statements, March 2022. Available at: https://tinyurl.com/yckx9akr

Aspect	Phase	Steering Approach	Explanation	Target	Supporting Analysis/ Studies/ Audits
Circular Economy Approach for the existing site	Demolition	As many resources as possible within the existing building to be reused, recycled, or otherwise diverted from landfill.	Reducing the total waste produced and the proportion that is sent to landfill. A pre-demolition waste audit will identify where materials can be reused. Soft strip to remove any items of potential future value. Demolition waste to be reused on site where possible or elsewhere were not.	>95% of non-hazardous demolition waste (volume) to be diverted from landfill	Pre-demolition waste audit. Reports from waste contractor and site office confirming rate of diversion from demolition waste only.
Circular Economy Approach for the Proposed Development	Design	Reduction of carbon emissions and development of a flexible and durable building.	Reduction of Carbon Emissions through material selection and the undertaking of a whole life carbon assessment to clarify likely carbon output.	<950 $kgCO_2e/m^2$ (modules A1-A5) GLA benchmark (Offices).	WLCA Study – Indicative materials carbon quantification shows 357 $kgCO_2e/m^2$ (modules A1-A5).
	Design	Building in Layers Approach to provide robust design built for longevity.	Building in Layers Assessment to confirm approach to material selection in line with the Building in Layers methodology.	Justification for the materials selection in line with the methodology.	Building in Layers Appraisal – included within Section 5. One Click output has confirmed a circularity performance of ~92% for the Proposed Development.
	Construction	Reduction in on-site emissions.	Reducing impacts to the local and global environment through the limiting, reporting and targeting of emissions and waste production and a robust site policy process.	>95% of non-demolition waste from site diverted from landfill. Energy and water use to be monitored on site with appropriate targets set.	Resource Management Plan is to outline all site requirements with regards to energy, water and waste.

Aspect	Phase	Steering Approach	Explanation	Target	Supporting Analysis/ Studies/ Audits
				Waste to be minimised and diverted from landfill.	
Circular Economy Approach for municipal waste during operation	Operation	Enhance the ability of building occupiers to increase recycling rates.	Facilitate the easy and convenient segregation of waste by building users for the operational phase of the building.	The scheme is to target >65% for municipal waste with an aspirational target >75%.	Correctly sized, located and labelled bins to be provided as an iceberg bin system.

Table 1 – Circular Economy Strategy Approach

1.2 Circular Economy Principles

In accordance with the GLA Circular Economy Principles, to assess the Proposed Development, the strategic Circular Economy approach must follow the methodology of the 'existing structures/buildings' Decision Tree, as shown in Figure 2, and for 'New Construction', as shown in Figure 3.

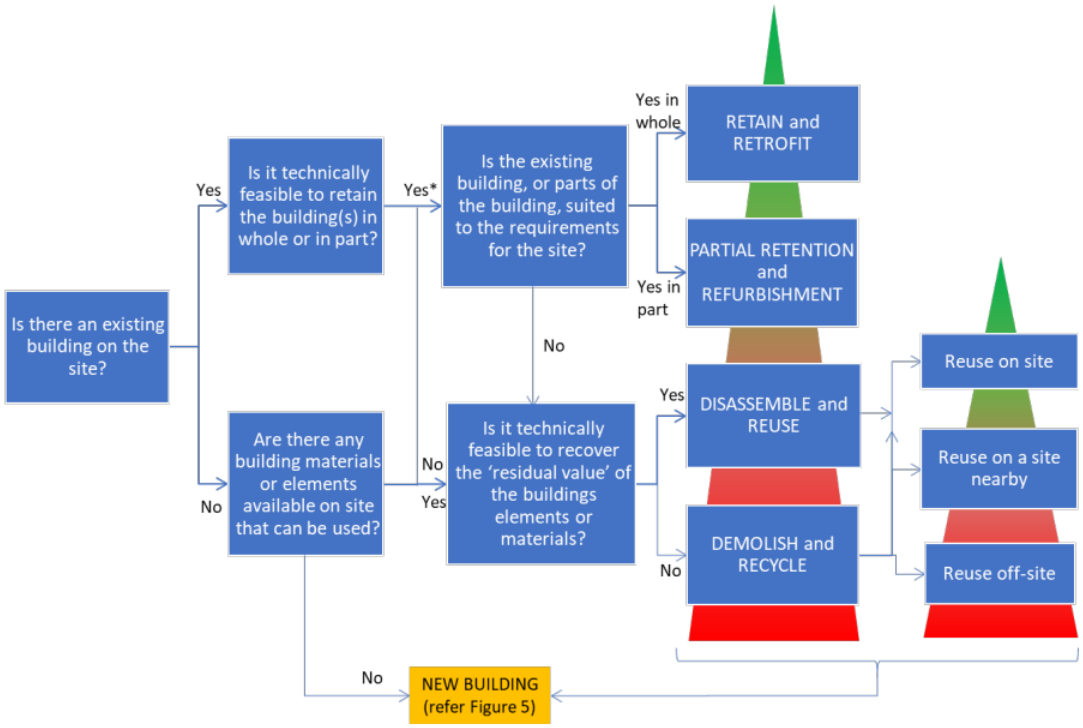


Figure 2 – Decision Tree for design approaches for existing structures/buildings (GLA, March 2022)[1]

It has been deemed that the existing buildings, which is on the site, would be unsuitable for redevelopment and therefore the building is to be demolished. Existing substructures (and hard landscaping) offer potential for crushing on-site and direct re-use as secondary aggregate for replacement substructure, superstructure and below surface level bedding for the piling of the new development.

The client has confirmed that a pre-demolition audit will be produced ahead of the demolition of the existing building and associated hard landscaping located on the site of the Proposed Development.

The audit will be used to determine whether reuse of materials is feasible and to maximise the recovery of material for subsequent high-grade or value applications. The audit should cover:

- Identification and quantification of the key materials where present on the project
- Potential applications and any related issues for the reuse and recycling of the key materials in accordance with the waste hierarchy
- Opportunities for reuse and recycling within the same development
- Identification of local re-processors or recyclers for recycling of materials
- Identification of overall recycling targets where appropriate
- Identification of reuse targets where appropriate
- Identification of overall landfill diversion rate for all key materials.

Furthermore, the audit will be performed prior to any demolition or strip-out works beginning on site. A Demolition Contractor or Main Contractor with a certified Environmental Management System (ISO 14001/EMS) and appropriate knowledge of buildings, waste and options for reuse and recycling of different waste streams will be appointed to undertake the audit.

The audit will guide the design, consider materials for high-grade reuse and recycling opportunities, and set targets for waste management. It will also compare actual waste arisings and waste management routes used with those forecast and investigate significant deviations from planned targets.

In addition to this, the circularity of the new buildings must be evaluated, following the strategic approach methodology for the 'new buildings, infrastructure and layers over the lifetime of development' Decision Tree (Figure 3). This approach encourages the consideration of opportunities to add value over the lifetime of the Proposed Development. It has been concluded by the Client and Design Team that the whole building is not designed to have a short building life, nor is it foreseeable that the building will need to change its function within its lifetime. Despite this, for all layers of the building, circularity must be considered. The opportunities for circularity are summarised within the 6 Circular Economy Principles, outlined in Figure 3 below. For the new construction at Longwalk, design for disassembly, adaptability, replaceability, longevity and flexibility have all been considered, as well as opportunities to maximise material reuse on/off site and the diversion of construction and municipal waste associated with the redevelopment from landfill either through reducing the quantity of waste produced, reusing waste materials, or sending said waste to recycling (reduce, reuse, recycle).

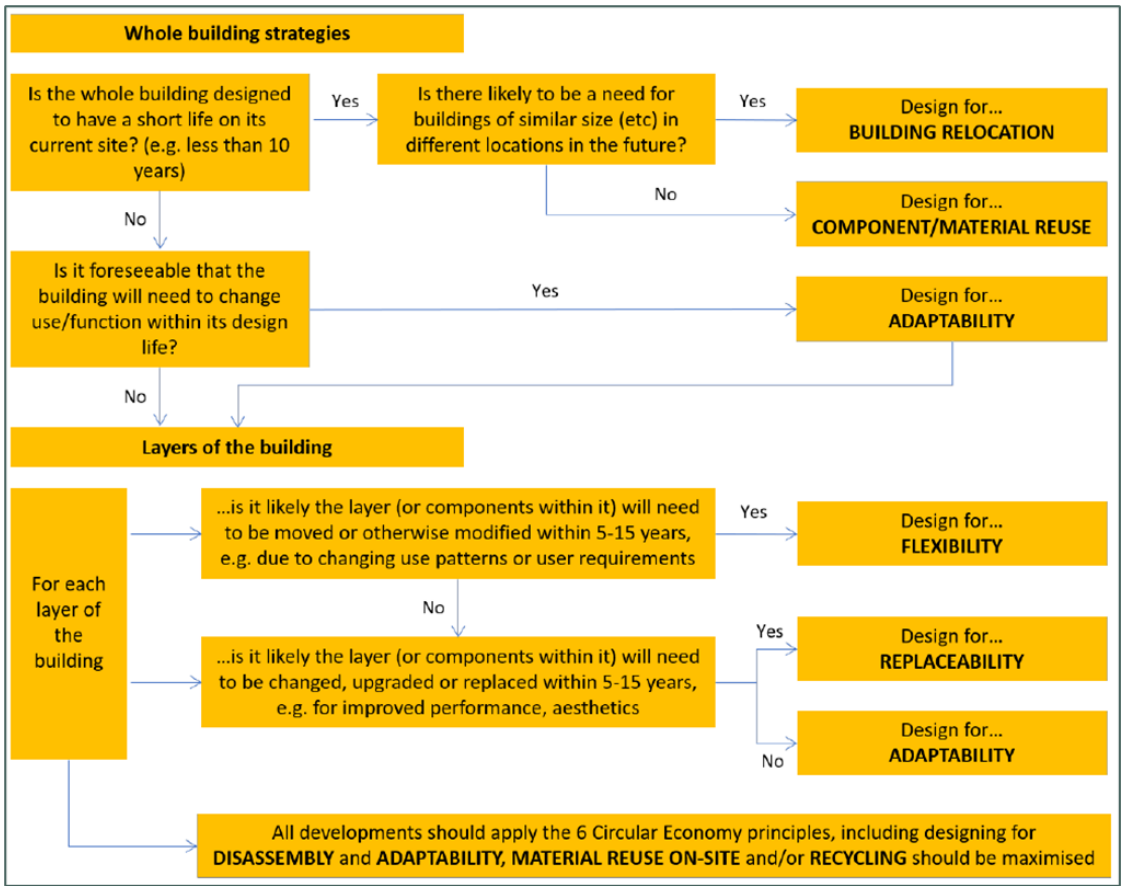


Figure 3 – Decision tree for design approaches for new buildings, infrastructure and layers over the lifetime of development (GLA, March 2022)[1]

In conclusion, the design approaches for the new construction, infrastructure and layers over the lifetime of development, have been considered and embedded in design considerations. Further details of this can be found throughout the report.

1.3 Project Circular Economy Key Aims

As aforementioned, the Proposed Development includes a new construction upon the site at 1 & 2 Longwalk Road, Stockley Park, Uxbridge.

Through the Design Team Meetings and ongoing dialogue with the Design Team throughout the early design stage process, the following points have been established as key aims of the site redevelopment:

- Utilise off-site recycled crushed material (Type 1) for hardstanding and piling mat.
- Provide a robust building design which is constructed with longevity and adaptability in mind and an ease of disassembly and flexibility.
- Reduce environmental impacts through consideration of the construction type and process, in addition to the materials used. Environmental impact will balance material sourcing with the lifespan of the materials chosen.

Strategic Policy & Objectives

2.0 Strategic Policy and Objectives

The Proposed Development is required to meet the relevant planning requirements with regard to Waste and Circular Economy. These are summarised in Table 2.

Planning Policy	Requirement
The London Plan 2021	**Policy SI 7 Reducing waste and supporting the circular economy** Policy SI 7 states that referable applications should promote circular economy outcomes and aim to be net-zero waste. A Circular Economy Statement that meets the requirements set out in Policy SI 7 should be submitted, to demonstrate: 1. How all materials arising from demolition and remediation works will be re-used and/or recycled. 2. 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. 3. Opportunities for managing as much waste as possible on site. 4. Adequate and easily accessible storage space and collection systems to support recycling and re-use. 5. How much waste the proposal is expected to generate, and how and where the waste will be managed in accordance with the waste hierarchy. 6. How performance will be monitored and reported. Development Plans that apply circular economy principles and set lower local thresholds for the application of Circular Economy Statements for development proposals are supported. In line with Policy SI 7, this is to be done with the aim of: 1. Promoting a more circular economy that improves resource efficiency and innovation to keep products and materials at their highest use for as long as possible. 2. Encouraging waste minimisation and waste prevention through the reuse of materials and using fewer resources in the production and distribution of products. 3. Ensuring that there is zero biodegradable or recyclable waste to landfill by 2026. 4. Meeting or exceeding the municipal waste recycling target of 65 per cent by 2030. 5. Meeting or exceeding the targets for each of the following waste and material streams: a. construction and demolition – 95 per cent reuse/recycling/recovery. b. excavation – 95 per cent beneficial use. 6. Designing developments with adequate, flexible, and easily accessible storage space and collection systems that support, as a minimum, the separate collection of dry recyclables (at least card, paper, mixed plastics, metals, glass) and food. Circular Economy Statements will be required for all referable applications which set out how the Proposed Development promotes circular economy outcomes and the aim for net zero waste. Developers will be expected to reuse, recycle, or recover 95% of construction and demolition waste and find beneficial uses for 95% of excavation waste. **GG5 Growing a good economy** In line with GG5, those involved in planning and development will: a. Promote the strength and potential of the wider city region.

Planning Policy	Requirement
	b. Seek to ensure that London's economy diversifies and that the benefits of economic success are shared more equitably across London. c. Plan for sufficient employment and industrial space in the right locations to support economic development and regeneration. d. Ensure that sufficient high-quality and affordable housing, as well as physical and social infrastructure is provided to support London's growth. e. Ensure that London continues to provide leadership in innovation, research, policy and ideas, supporting its role as an international incubator and centre for learning. f. Promote and support London's rich heritage and cultural assets, and its role as a 24-hour city. g. Make the fullest use of London's existing and future public transport, walking and cycling network, as well as its network of town centres, to support agglomeration and economic activity. h. Recognise and promote the benefits of a transition to a low carbon circular economy to strengthen London's economic success. This will be done with the aim to conserve and enhance London's global economic competitiveness and ensure that economic success is shared amongst all Londoners.
Hillingdon Local Plan – Part 1 (2021)	The Council requires new development to address waste throughout the development life cycle, from design to construction through to occupation, and mange waste at the upper end of the waste hierarchy. It promotes reducing waste generation, reuse of materials, recycling, use of waste as a resource and appropriate recovery/composting. **Policy EM11: Sustainable Waste Management** The Council will aim to reduce the amount of waste produced in the Borough and work in conjunction with its partners in West London, to identify and allocate suitable new sites for waste management facilities within the West London Waste Plan to provide sufficient capacity to meet the apportionment requirements of the London Plan which is 382 thousand tonnes per annum for Hillingdon by 2026. The Council will require all new development to address waste management at all stages of a development's life from design and construction through to the end use and activity on site, ensuring that all waste is managed towards the upper end of the waste hierarchy. The Council will follow the waste hierarchy by promoting the reduction of waste generation through measures such as bioremediation of soils and best practice in building construction. The Council will promote using waste as a resource and encouraging the re-use of materials and recycling. The Council will also support opportunities for energy recovery from waste and composting where appropriate. The Council will safeguard existing waste sites unless compensatory provision can be made. The Council will seek to maximise the use of existing waste management sites through intensification or co-location of facilities.

Table 2 – Summary of Planning Policy requirements

Environmental Assessment & WLC

3.0 Environmental Assessment & Whole Life Carbon

A Whole Life Carbon Assessment (WLCA) has been undertaken in accordance with the 'RICS Whole Life Carbon Assessment for the Built Environment, 2nd edition' to establish the Whole Life impact of the proposals in relation to embodied, operational and end of life CO_2 emissions. The assessment outlines the process of WLCA, and what is / what is not included. The aim of the RICS document is to provide clarity on the British Standard EN 15978: 2011 Sustainability of Construction Works, for the sustainability assessment of buildings, and the approach required within this methodology.

The aim of this assessment has been to model the whole life carbon impact of the proposed design, with the results used to inform the Circular Economy criteria of the London Borough of Hillingdon and the GLA planning policy guidance.

Overall, the Proposed Development has shown considerable effort in reducing the embodied and operational CO_2 emissions associated with its construction, with initial calculations showing an embodied and operational carbon as follows:

Module	WLC benchmark (kg CO_2e/ m^2 GIA)	Aspirational WLC benchmark (kg CO_2e/ m^2 GIA)	Result for this development
A1-A5 (excluding sequestration/ biogenic carbon)	<950	<600	357
B1-B5, C1-C4 (excluding B6 & B7)	<450	<370	141
A-C (excluding B6 & B7, including sequestration)	<1400	<970	498

Table 3 – Comparison of results with the GLA WLCA benchmarks (Offices)

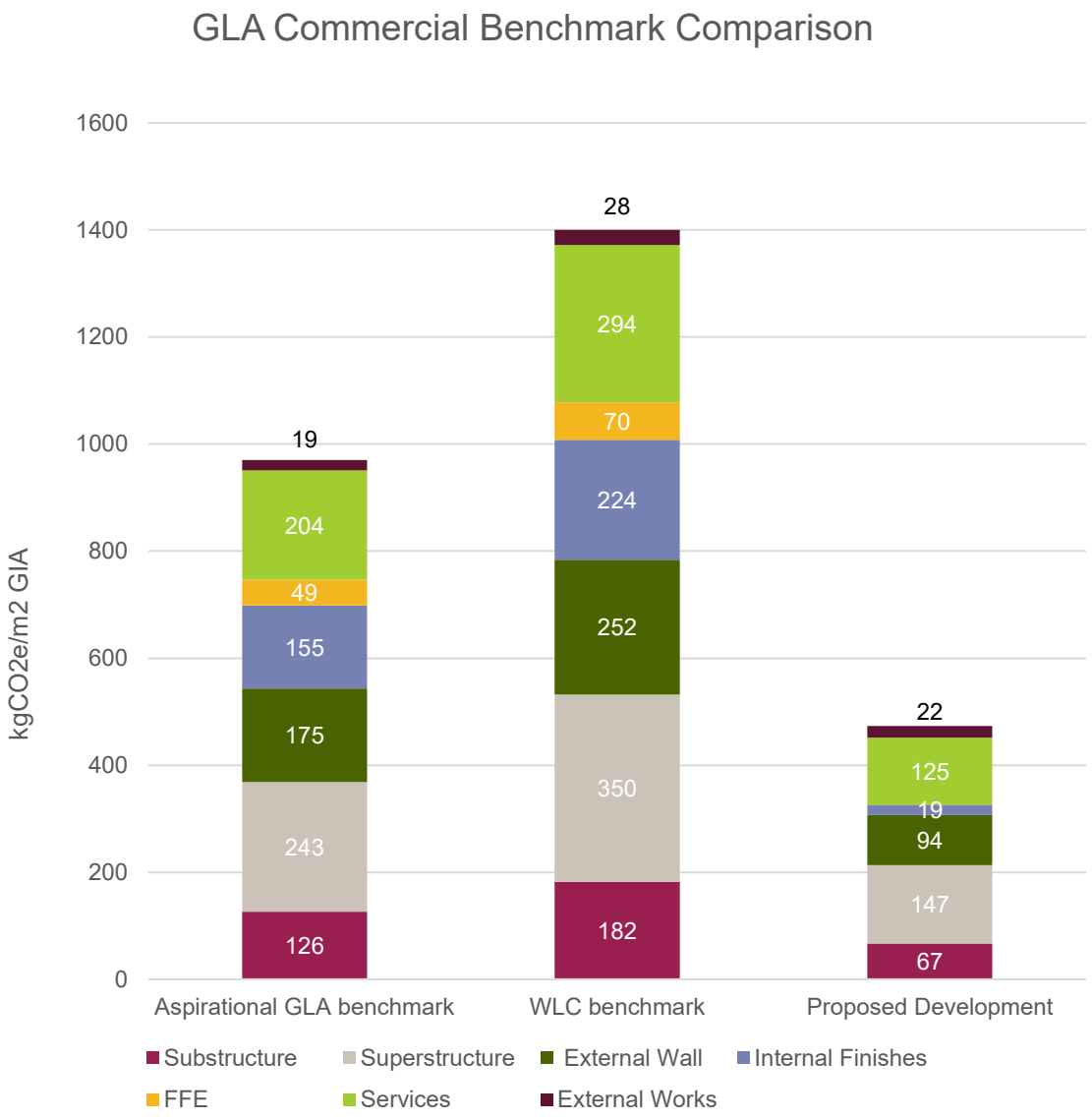


Figure 4 – Comparison of the Proposed Development's Carbon Emissions against GLA Offices Benchmarks

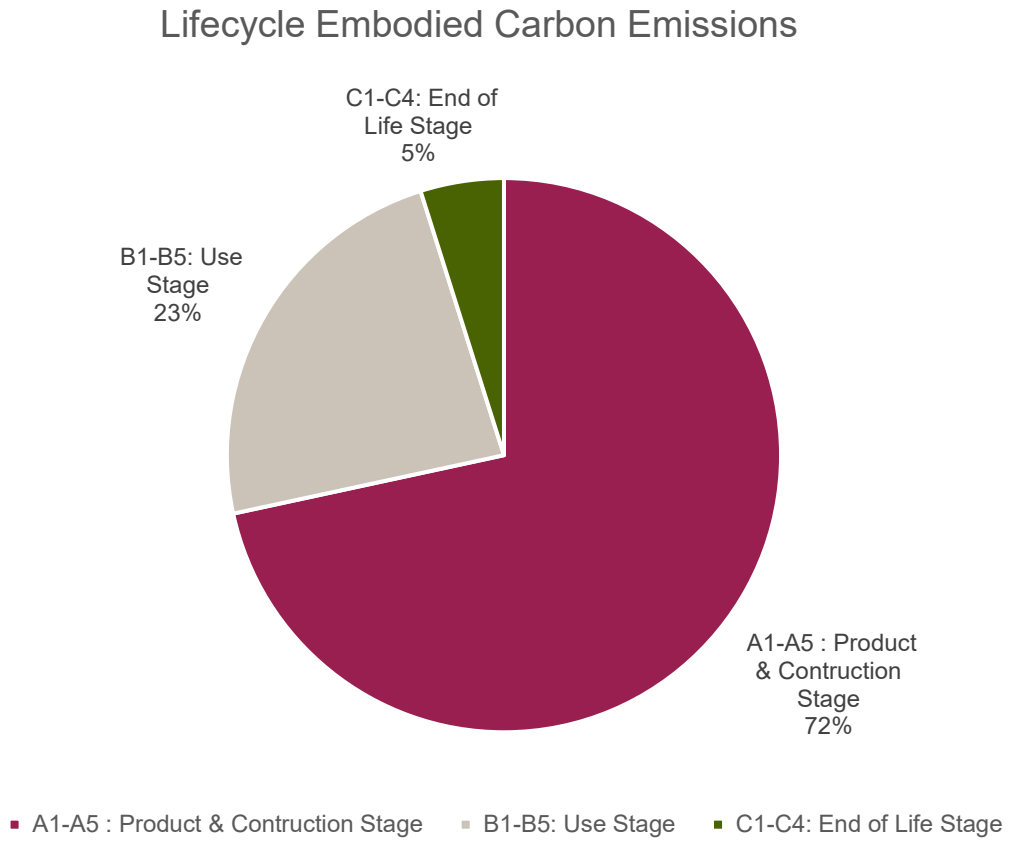


Figure 5 – Embodied Carbon emissions over lifecycle stages

Please see the supporting WLCA report for full details.

Circular Economy

4.0 Circular Economy

The circular economy ethos is driving the move away from a ‘Take – Make – Use – Discard’ economy to a ‘Re-make and Use Again’ economy.

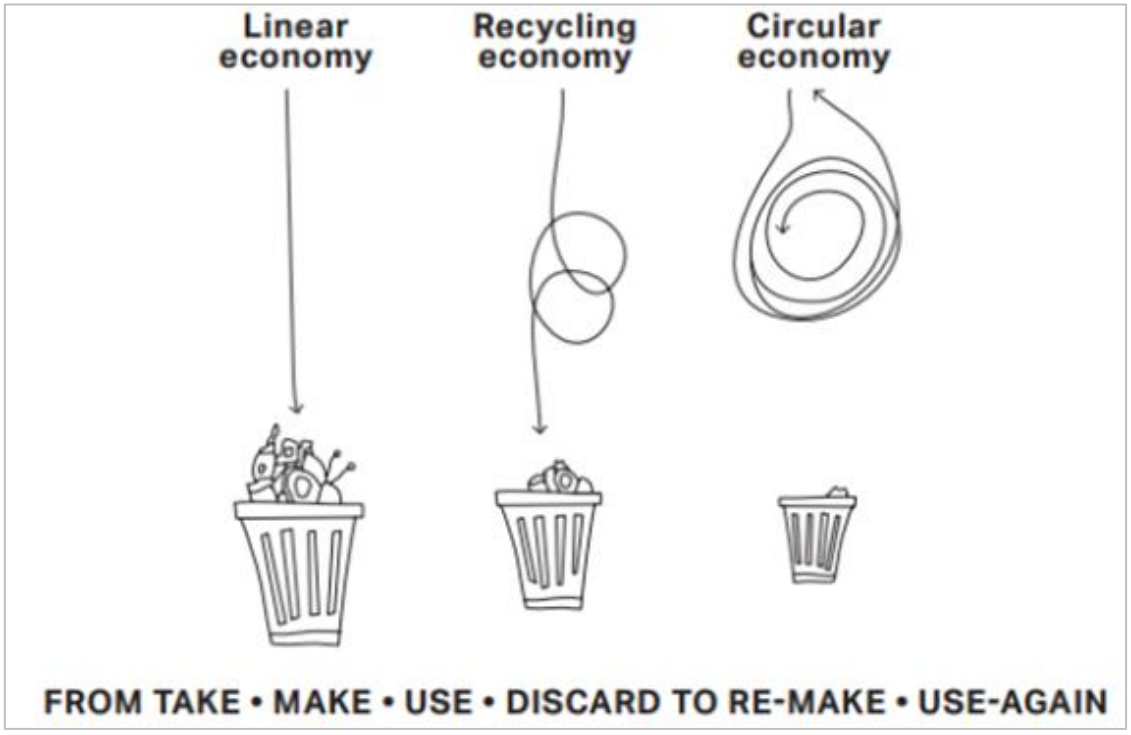


Figure 6 – Linear, Recycling and Circular Economies Diagram (GLA, March 2022)

As part of circular economy considerations, developments should aim to:

- Design out waste – consider impacts of waste from both construction, operation and end of life.
- Design for longevity – appropriate material specification for intended use.
- Design for adaptability and flexibility – meeting present and future needs within the building form and providing potential for the building form to be repurposed at a later stage.
- Design in layers – applying appropriate materials within the building layers which will allow them to be easily replaced when required, dependent on lifespan.
- Design for the future – individual products and services to be ‘loose fit’ to allow easy upgrade and replacement.
- Select appropriate materials – specifying low impact, recyclable and where possible, reused materials which have minimal impact on the environment and health & wellbeing.

For the construction industry, the impacts to the circular economy can be categorised into the following sections:

- Demolition and reclamation
- Design and construction impacts
- Site waste and its management
- Operational waste storage

- End of life disassembly and re-use

Impacts such as anticipated waste arisings at each of these stages are required to be considered and mitigated as much as possible to ensure that the impact is minimised, and materials are fed back into the supply chain to be re-used.

4.1 Design and Construction Impacts Assessments

The design of the Proposed Development prior to the specification of sustainable materials and construction methods has adopted an ethos of a 'circular' design which embraces the key sustainability concepts of longevity, adaptability and flexibility.

4.1.1 Longevity

A key element of circular economy is enhancing and extending the lifespan of a building - ensuring the durability of all materials will reduce the need for replacements and repairs and enhance the sustainability of the scheme as a whole through the promotion of resource efficiency. This is achieved through the appropriate specification of materials to secure a durable finish appropriate for its intended use. Materials which are not fit for purpose, or with inherent redundancy counter this approach and have been avoided within the design of the Proposed Development.

Material finishes both internally and externally have been chosen and evaluated to ensure a durability of finish appropriate for their intended use. Areas of high wear will be investigated further at the detailed design to ensure that, where needed, adequate protection is factored into the construction – i.e., materials are within an area sufficiently robust for the area's use.

Communal entrances, bin stores, core areas, corridors and communal spaces are all areas of high wear that will need a finishing strategy beyond that of exposed finishes. Therefore, a materials analysis will be undertaken to ensure materials are correctly specified based on the type of use expected and the damage to the material surfaces that may take place.

Ensuring the durability of all materials will reduce the need for replacements and repairs and enhance the sustainability of the scheme as a whole through the promotion of resource efficiency.

Besides human factors, external materials will also suffer from environmental degradation. Material finishes on the external elevations have been chosen for their hardiness in addition to their architectural and construction qualities.

Façade options have been explored, and current design is an aluminium façade cladding panel, with double glazed windows that will introduce sufficient natural light to the office spaces. These materials have been chosen for their hardiness and longevity, in addition to their architectural and aesthetic properties.

Structural steel system has been proposed as it's a long-lasting material and is easily procurable. Structural steel profiles are proposed with 60% recycled content. In foundation, all concrete specified in the construction is proposed to be procured as locally as possible, with at least a 50% recycled/secondary aggregate content. Moreover, the reinforced steel bars (re-bar) are proposed from 97% recycled content.

The client does not anticipate that the building will require re-purposing or requiring a change of use throughout its lifetime. However, both concrete and steel offer a great potential for recycling and re-use at the EoL stage.

4.1.2 Adaptability

The ability of spaces to adapt to present and future needs is key to securing long-term tenure within a property, creating established communities in addition to preventing the need for people to move when circumstances change. The client does not anticipate that the building will require re-purposing or requiring a change of use throughout its lifetime.

The use of a structural steel framed construction is a key factor on ensuring that the internal space remains as flexible as possible in the future, allowing the internal layout to be repurposed in the future to meet changing local needs.

The infill structure of the development will be made up of insulated dry-lining partitioning walls within and between adjacent offices and communal spaces, reinforced with metal studwork. These flexible structures can be easily disassembled and adapted throughout the lifetime of the Proposed Development, enabling the accommodation of any alterations to the purpose of spaces available within the building. Furthermore, at the end of the building life, a metal framed drywall partition will be more easily demountable and recyclable/re-usable allowing the differing elements to be separated (steel, plasterboard and, insulation) and disposed of appropriately.

4.1.3 Flexibility

The flexibility of the industrial warehouse spaces allows for a range of potential tenant types and operational requirements to be accommodated within the proposed structure over the building's lifespan. The units can be configured to suit different industrial, logistic, storage, distribution and light manufacturing uses, providing flexibility for future changes in occupancy and business requirements.

Given the piled reinforced concrete foundations and substructure, there is limited flexibility within this dimension of the build. As such, these elements are likely to remain in any future adaptation or redevelopment. However, the warehouse superstructure and internal arrangement provide greater flexibility, with each unit designed to accommodate different tenant requirements. The open-plan warehouse areas allow for the installation, removal or reconfiguration of internal partitions, storage arrangement, racking and operational area without significant structural alteration.

In addition, a dedicated strip of office accommodation is incorporated within each warehouse unit, providing flexibility for a range of administrative, management and ancillary functions. The office areas can be adapted to suit individual occupier requirements through relatively minor internal alterations, such as changes to partitioning, finishes and layout.

4.2 Sustainable Procurement

As part of the procurement process, the use of materials with a high recycled content and/or locally produced will be investigated. In addition, the use of the suppliers and manufacturers with a certified Environmental Management System will also form a key part of the procurement strategy. These commitments to be upheld on site by the Principal Contractor once appointed.

The design specification and procurement of lower impact construction products will be enhanced through the use of Environmental Product Declarations (EPDs) on all key materials designed and procured as part of the Proposed Development. As an EPD is an independently

verified environmental label in accordance with the requirements of ISO 14025, the reduced risk and environmental impact from poor supplier information will be avoided within the design and construction stages.

Internal finishing elements – where structural considerations are not applicable – will be sustainably sourced where this is not detrimental to the overall finish and quality of the products used.

Furthermore, as outlined above, >95% of all materials will be sourced from responsible suppliers, with >95% materials used also being non-toxic to avoid localised pollution.

Materials with a high content of recycled material will be prioritised within the procurement process to secure ongoing carbon savings and strive towards the GLA target of the specification of building materials made up of 20% recycled content. These materials have been specified in support of the reduction of embodied CO_2 emissions, with the materials specified outlined within the Whole Life Carbon Assessment.

Building In Layers

5.0 Building in Layers

The Proposed Development has been designed to be robust in its construction type to prolong building longevity, whilst being sensitive to the overall aims of reducing on-site embodied carbon emissions in line with national and regional policy.

Additionally, in line with the GLA March 2022 Circular Economy guidance, the proposed design has adopted a 'Building in Layers' approach, maximising the durability of the Proposed Development whilst considering the whole life carbon impact of materials and processes.

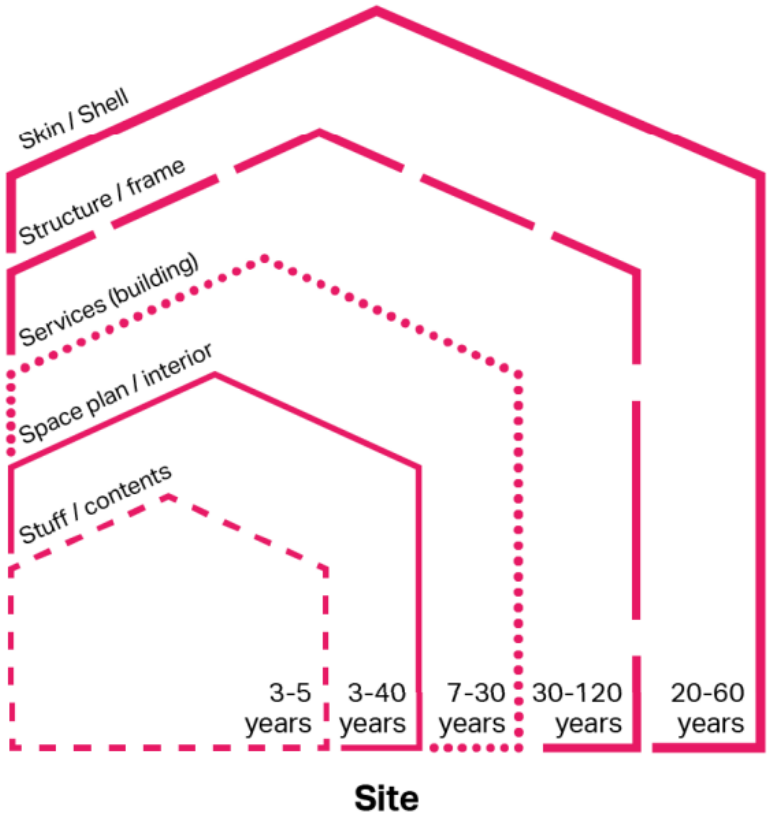


Figure 7 – 'Building in Layers' diagram and their indicative lifespans (GLA, March 20223)

To this end, it is anticipated that a minimum of 92% of the materials utilised within the Proposed Development will be 'Circular by Design', allowing elements to be removed and reused elsewhere when needed. The One Click 'Building Circularity' analysis from the WLC Assessment has indicated a circularity of the Proposed Development materials to be 92%. The materials hopefully re-used on site from the demolition will increase the circularity of the Proposed Development.

Building in Layers is a common method of assessing the validity of certain material types and proposed lifespan of these materials. Assessments can then be made as to the appropriateness of the materials and finishes adopted, and any potential reclamation that may be possible at end of life.

Building in Layers puts all elements of a building into a timeline with various life expectancies, and therefore the likelihood of renewal or replacement can be gauged, and an appropriate strategy used to mitigate any potential predicted issues in relation to the products, materials and finishes used.

SITE: Location, boundaries, surrounding context, Typical Lifespan: Infinite

The site location is the one element of the Proposed Development that will last forever. Long after the current buildings have been decommissioned and replaced, the site will remain only to be redeveloped again to form something which will meet future generation's needs.

The site location has been deemed appropriate for the intended uses as this is in keeping with the surrounding context of existing recent development in the area.

Being located within the London Borough of Hillingdon, which is a heavily developed area, the proposals fit the aesthetic and current use classes of the surrounding area, and as such will 'blend' with other recent developments.

Materials on the site will be non-toxic, and no material used on the site will prevent the site's future use or redevelopment.

STRUCTURE: Structural Elements. Typical Lifespan: 30-300 years

Ready-mix concrete piling, caps and ground floor with steel re-bar have been specified. A steel framed structure has been chosen for both the ease of construction, ability to use recycled content and for longevity of the Proposed Development. A perk to using concrete for structural elements, is the ability for it to be crushed and reused as secondary aggregate as part of a new development or recycled/reused off-site. Additionally, the steel re-bar and framework can be removed and recovered due to steel being a widely recyclable material during the EoL process.

This construction will provide a durable and long-lasting building structure which will last beyond its anticipated 60-year lifespan and will have the potential to support a multitude of future uses if/when the need arises.

SKIN: Cladding, Renders, and Brickwork. Typical Lifespan: 30-300 years

External finishes often have the biggest impact on the overall durability of a development. They are exposed to the weather, are subjected to less routine maintenance and activities surrounding these elements and are generally less managed when compared to internal surfaces. The wrong specification of materials can result in reduced lifespan, increased maintenance, and a poor appearance to the exterior of the building, resulting in lower asset prices and less desirable properties.

The aluminium cladding façade has been selected for its durability, low maintenance requirements and long service life. In contrast to masonry system, aluminium cladding can generally be more readily dismantled and recovered at the end of its service life, particularly where mechanical fixing are used. The material also has a high recycling potential, allowing the aluminium to be recovered and recycled into new products, while retaining significant material value.

The cladding system is expected to require minimal intervention during the building's operational life due to the inherent durability of aluminium and its resistance to degradation.

Where replacement is eventually required, the system provides opportunities for reuse or recycling, supporting the retention of material value and reducing waste at end of life.

SPACE: The internal layout of the site is to be considered to provide durable and long-term space, with the potential for adaptability as use circumstances change. Typical Lifespan: 3-30 years

It is not proposed that the industrial units will require a change of use or design throughout the building's lifetime, therefore a steel frame for longevity was proposed.

Being a framed construction, internal spaces are easily adaptable where needed in the future to accommodate changes in lifestyle, well-being, or occupant density.

Framed internal partitions also allow each individual element to be removed as a whole (steel studwork, plasterboard, insulation etc) rather that the cutting, bashing and grinding associated with the fabric removal in more traditionally constructed units.

Internal floors and walls in core areas shall be durable and designed to minimise risk of damage, for example through hard wearing floor finishes and kick plates to doors.

SERVICES: Heating, Ventilation and Electrical installations. Typical Lifespan: 7-15 Years

The Project Team confirmed during the Circular Economy Workshop that an MEP contractor has not yet been appointed, but that some pre-emptive assumptions have been made by the MEP engineers for the Proposed Development's Design Stage. Below is a summary of the currently assumed ventilation, heating, and cooling measures to be installed. This list may undergo alterations in future when the MEP contractor is confirmed.

- Mechanical Ventilation and Heat Recovery (MVHR) is to be installed within the office zones.
- High efficient VRF unit will be used for office cooling.
- Anticipated that the plant room is to be located on the roof floor.
- Installation of electric radiators has been considered for space heating.
- Point of use electric heaters has been considered for water heating.
- LED lighting fixtures with motion and daylight sensors.
- Solar PV panels system will be installed.

The use of Mechanical Ventilation with Heat Recovery (MVHR) will provide air changes whilst maintaining internal temperatures and reducing heat losses.

All plant installed will be designed to be removed in its entirety, without the need to dismantle prior to removal, allowing this to be removed and replaced easily in a modular manner. Access to these plant spaces will be appropriately sized to allow equipment to be removed and replaced, with the size of door openings and corner access for these items also properly considered at Detailed Design Stage.

STUFF: Including all furniture, desks, pictures, appliances, lamps, etc., which are typically supplied by the building user. Typical Lifespan: months/few years

Any appliances to be installed as part of the minor reception fit-out will be chosen with reliability, energy use, and environmental impact in mind. All appliances will be highly rated for energy efficiency and water use to ensure ongoing running costs are kept to a minimum.

Based on the new Energy Efficiency Labelling scheme introduced from March 2021, a good performing appliance will meet the following ratings:

- Fridges/Freezers: E
- Washing Machines: B
- Dishwashers: D
- Washer-Dryers: D

The Project Team has confirmed that the above standards are achievable for the development and appliances will be carefully researched before specification. When purchasing appliances, resources and reviews in relation to usability, reliability, and cost of running will be consolidated and discussed within the Project Team to ensure that environmental impacts of proposed white goods are continually considered.

Circular Resource Management

6.0 Circular Resource Management

This section considers the project's approach to resource efficiency and Circular Economy principles throughout the construction, operation, maintenance and eventual end-of-life stages of the Proposed Development. It addresses the management and efficient use of resources during construction, including energy, water and materials, alongside measures to minimise and manage construction and operational waste.

The section also considers the incorporation of recycled materials, the maintenance, repair and replacement of building components, in addition to opportunities for disassembly, reuse and recovery at the end of the building's life. These measures aim to reduce resource consumption, minimise waste and support the retention of material value throughout the building's lifecycle.

6.1 Site Waste Management

Site waste will be managed on site through a Site Waste Management Plan (SWMP). The SWMP emphasises the need to minimise waste leaving site and the reuse of materials on the site in line with the waste hierarchy, depicted in Figure 8 below. Waste from the site will be managed via a certified waste contractor and will be monitored through best practice site management procedures.

To comply with the GLA guidance on Circular Economy, the Recycling and Waste reporting table (Appendix C) will be completed and is referenced within the Site Waste Management Plan for module stages A to C (the product sourcing, use and end of life stages). This will cover:

- The total amount of non-hazardous/contaminated waste material arising (tonnes) for excavation, demolition and construction
- The percentage of non-contaminated material reused on-site, recycled on-site, reused off site and recycled off-site
- The percentage of waste sent to landfill amount
- The percentage of waste recovered
- Clearly defined targets that meet the London Plan and Hillingdon Council policy targets:
    - >95% reuse/recycling/recovery of construction waste
    - 95%beneficial use of excavation waste
    - 65% recycling of municipal waste by 2030
    - Apply a commitment to the London Environment Strategy business waste recycling target of >75% (by weight/tonnage) by 2030

Targets that go above those set by the London Plan policy SI 7(A) will also be sought where possible. The quantity of waste diverted from landfill will be in accordance key material groups (Appendix F), as a minimum, with the overall aim that the development will be net zero waste, with all waste either being re-used on site or recycled via a licenced waste contractor. Regular reports (minimum monthly) will be provided by the waste contractor and stored as part of ongoing site monitoring and management. Where deviations from the zero-waste strategy become evident, actions will be organised to ensure that the zero-waste strategy is adhered to.

In accordance with the principles of the London Plan and Hillingdon Council, all waste on site will be managed in accordance with the waste hierarchy, with a target for 0% of biodegradable and/or recyclable material being sent to landfill.

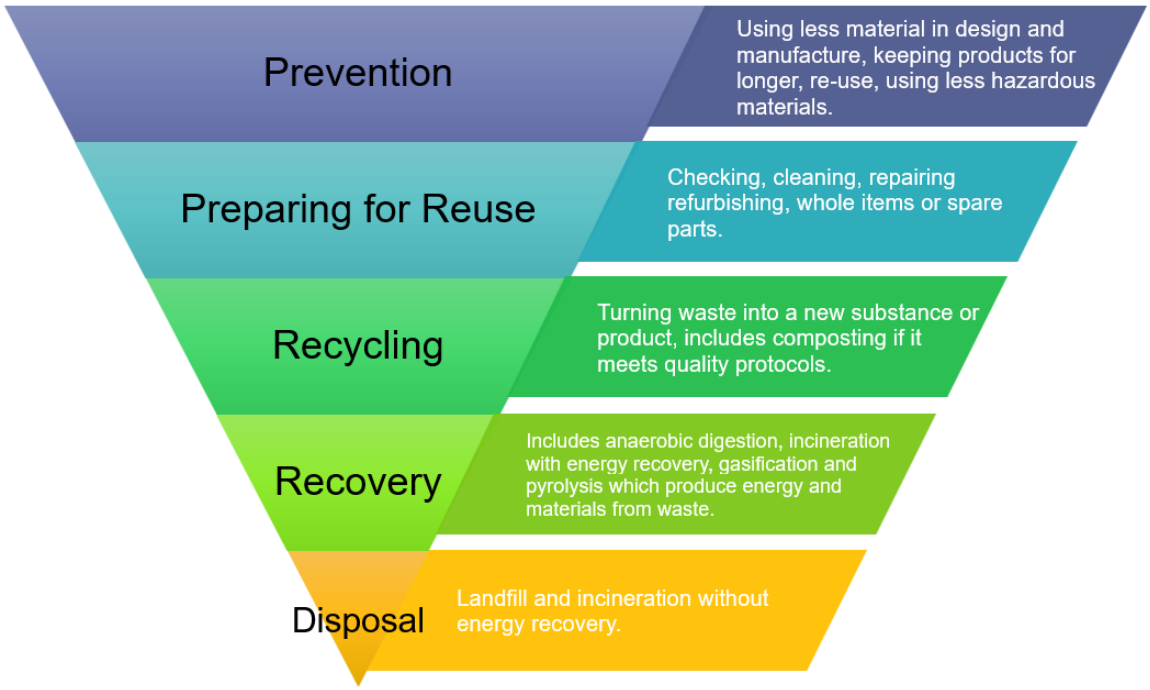


Figure 8 – The Waste Hierarchy (DEFRA)

Where waste must be removed from site and is not re-usable, this will be managed through a licenced waste contractor in line with the benchmarks for diversion from landfill set out in the London Plan policy SI 7(A) as an absolute minimum.

To facilitate the re-use of materials on the site, appropriate areas will be allocated within the Construction Works Plan, and detailed in the associated method statement, for the storage of re-usable materials from the construction phases. The aim of this materials storage will be that this material can be used elsewhere on the site and reduce the waste removed from site.

Excavation is to be undertaken on the site during enabling works to install piled foundations suitable for the proposed construction.

6.2 Site Resource Use

6.2.1 Energy Use from Site Activities

The Design Team has confirmed that an Energy Champion will be selected from the beginning of site works who will be responsible for the monitoring, cataloguing, and reviewing of site wide energy use. This is likely to be the Main Contractor, and they will be informed of this requirement pre-appointment, during the tender process.

Targets for energy use throughout the construction program will be set based on previous experience, with the actual usage tracked and reported twice weekly – Appendix B includes workshop meeting notes confirming the Project Team's commitment to monitoring energy,

water and waste throughout the construction phase, operational monitoring, and a tender commitments letter from the Client confirming that a Resource Management Plan (containing targets for energy and water usage, waste production and the transport of materials and waste) will be produced for the development by the Principal Contractor. These records of energy usage will then be fed back to the Site Manager who will work with the Energy Champion to reduce energy use to the lowest possible rate.

Energy Efficiency will be a significant part of the Site Induction Process with each member of the site team accountable for the enforcement of energy efficient measures, with a reporting structure in place for non-compliance.

Where possible, strategies and technology will be utilised throughout the site to reduce energy consumption such as:

- Enhanced building fabric in line with Building Regulations 2026 Part L
- High efficiency LED lighting fixtures
- Mechanical Ventilation with Heat Recovery
- High efficiency VRF system to provide heating and cooling to reception, offices and meeting room
- Electric radiators for space heating in circulation aeras
- Electric point of use for water heating
- On-site renewable energy generation via solar PV panels.

6.2.2 Water Use from Site Activities

Similar to energy use, the Principal Contractor appointed will champion the water saving efforts on the site, record and monitor water use throughout the duration of the project.

Targets will be set for water use based on best practice and previous experience, with records kept at a minimum of weekly intervals to inform ongoing saving measures and for evidence of commitment to this goal. Key information on the saving of water resources will be provided as part of the induction to site for all operatives.

Reporting systems will be in place for the wasting of water, where each member of the site team will be accountable for the enforcement of water efficiency measures.

Water use for welfare will be reduced through the use of no water, or low water use urinals, and low flow fittings where this is appropriate. PIR and solenoid valves will also be installed, where this is considered to be appropriate and effective in reducing water consumption.

6.2.3 Waste from Site Operations

The use of single use plastics will be avoided through the provision of the following welfare facilities to encourage a more sustainable and low waste operations on site:

- Chilled, fresh water made available to all, with re-usable cups or bottles – to avoid the use of single use plastic bottles.
- Refrigeration – appropriate facilities available for the storage of food and other items which would otherwise be bought – reducing the associated packaging.
- Kettle & mugs to be provided to prepare tea and coffee – reducing the need for take-aways in disposable cups.
- Appropriate wash-up facilities to wash and re-use the mugs and cups provided.

The potential for the incorporation of the above will be dependent on the precise site welfare facilities available at each construction stage, but as much as practicable will be incorporated where possible.

The precise details of the facilities to be provided will be outlined in the Contractors Construction Works Plan.

6.3 Operational Waste

The ability of the occupier and/or building users to appropriately sort and store waste as part of the general operation of the self-storage facility is strongly influenced by the location and ease of access to the internal and external waste stores provided.

Therefore, the appropriate storage of refuse and recycling – both internal and external – will be incorporated into the overall design and layout of the scheme to facilitate a recycling rate of 65% or greater, in line with GLA requirements.

The developers are to ensure waste containers are utilised efficiently in order to reduce the number of collections and therefore collection vehicle traffic. To avoid obstruction to the local highways, a stopping space will be allocated to allow the collection vehicle to stop adjacent to the site. It will also be ensured that at no time bins will be left on the public highway.

6.3.1 Operational Waste Management Plan

The developer needs to recognise that waste will be generated by the site's future tenants and therefore will take measures to ensure that this takes place as responsibly as possible. The waste hierarchy will be promoted and explained to the client to ensure that waste generation is minimised. Once all avenues for prevention have been examined, opportunities to maximise for re-use, recycling and recovery will be targeted.

The provision of information on the ability of occupants to recycle items is shown to strongly increase recycling uptake. Therefore, information on the waste bins provided, what can be placed in each bin, where larger items can be taken and when, will be provided to building users to inform their waste decisions during the operational phase of the development. A Welcome Pack provided to all new tenants will include clear and accessible guidance on the waste segregation system, bin locations, collection days, and what materials can be recycled Illustrated signage will be affixed to each bin inlet point, indicating which materials should be deposited.

Figures of expected operational waste generation will be continually managed and reported to ensure that waste storage is of an adequate size to support the needs of the building occupants and maximise potential recycling levels.

While operational waste generation is dependent on tenants, the approach taken by the developer will maximise the opportunities for tenants to make suitable and responsible choices in order to lower their waste generation while maximising the percentage of waste which is recycled.

6.3.2 Operational Waste Storage

The site will provide adequate, flexible, and easily accessible space for segregating and storing waste for collection, recycling, and reuse in line with the London Plan. This will ensure that waste can be sorted and stored suitably between collections and will be explained to the

future tenants. In addition to this storage, there will be a dedicated area for food waste with bins provided in tenanted areas.

In addition, consumables within the buildings – furniture, decorations etc. –, in accordance with the Building in Layers methodology, have the shortest lifespan and have a significant impact on the quantity and type of waste generated by the Proposed Development during operation. Therefore, further information on the impact of waste disposal, with a focus on the use of natural, biodegradable products will be provided to building occupiers, in addition to information about reusing, repurposing, and upcycling to minimise the quantity of consumables being sent to landfill.

6.4 Maintenance, Replacement and Repair

Throughout the lifespan of a development, elements of the build will need to be replaced and/or repaired as part of general maintenance as elements are damaged or reach the end of their natural lifespan.

In accordance with the Whole Life Carbon Assessment undertaken for the site, it is estimated that the maintenance repair and replacement of building elements (calculated under the B2, B3 and B4 RICS lifecycle stages) accounts for 85,176 $kgCO_2e$ of the buildings predicted 60 year life span.

The carbon emissions associated with repair, replacement and maintenance activities are considered alongside the benefits of extending the service life of the building components and materials, mitigating the greater carbon impact associated with premature replacement and the manufacture of new items.

Estimated factors for Module B Construction Waste are driven by the expected lifespan of each material, as modelled in OneClick LCA. **number of replacements x Module A*

Table 4 shows detailed calculations for a sample of materials with different lifespans, to demonstrate the basis of Module B Construction Waste calculations.

Material	Lifespan	Number of Replacements	Construction Waste - Module A	Construction Waste - Module B*
Ready-mix concrete	60	0	5%	0%
Reinforcement steel (rebar)	60	0	5%	0%
Gypsum plasterboard	30	1	4%	4%
Aluminium framed curtain wall	60	0	1%	0%
Wooden interior doors	40	1	0%	0%
Suspended ceiling systems	25	2	1%	2%
Waterproofing membrane	30	1	10%	10%

Material	Lifespan	Number of Replacements	Construction Waste - Module A	Construction Waste - Module B*
Synthetic carpet tiles	15	3	6%	18%
Electric vertical radiator	45	0	1%	0%

**number of replacements x Module A*

Table 4 – Module B Construction Waste calculation sample

6.5 Material Recycled Content

Outlined below are the major, predominant building elements and materials included within the Proposed Development based on the currently assumed build outs for all elements, with predicted re-use and recycling values.

Element	Material	Predicted quantity (kg)	Gross intensity (kg/m^{2}GIA)	Recycled Content (% by value)
Sub & Superstructure	Steel reinforcement	331,185.65	30.96	97%
	Steel Profiles	674,707.17	63.10	90%
	Ready-mix concrete, RC 40/50, 50% (GGBS)	5,319,315.74	497.47	9%
Upper Floors	Steel reinforcement	28,524.83	2.66	97%
	Ready-mix concrete, RC 40/50, 50% (GGBS)	486,475.63	45.49	9%
	Glass wool insulation	5,167.36	0.50	50%
	Galvanised steel decking	186,262.38	17.42	70%
Envelope	Gypsum plasterboard	73,168.50	6.84	25%
	Rock/stone Wool Insulation	126,338.47	11.81	75%
	Aluminium windows	63,756.94	5.96	31%
	Aluminium cladding	49,689.19	4.65	70%
Internal Partitions & Finishes	Concrete masonry unit	118,059.13	11.04	47%
	Metal Framing	1,399.84	0.13	70%
	Carpet Tile	6,257.48	0.59	75%

Element	Material	Predicted quantity (kg)	Gross intensity (kg/m²GIA)	Recycled Content (% by value)
	Gypsum plaster board	27,657.55	2.59	50%

Table 5 - Major construction materials and their recycled content

Recycled and reused content has been calculated in accordance with the methodology set out in Appendix 3 of the GLA Circular Economy Guidance. Material quantities have been extracted from the OneClick LCA whole life carbon model, which references a mix of Environmental Product Declarations (EPDs) and industry database defaults to determine the recycled content percentage for each material. Where EPD-specific data is available, this has been prioritised; where EPDs are not available, OneClick LCA database default values have been applied as a conservative estimate.

Recycled content by mass has been calculated by applying the recycled content percentage to the total material quantity for each element. Recycled content by value has been calculated as a cost-weighted proportion across all materials, using estimated unit costs aligned with current market rates, as per OneClick database. Where the cost per unit was not available in OneClick database, average market research was obtained. Appendix D presents the detailed supporting calculations for all materials with recycled content, which are included within the Bill of Materials.

6.6 End of Life Disassembly and Re-Use

The end-of-life opportunities for material recovery have been investigated as part of the design process with the requirement for disposal, recycling or repurposing considered as a key part of product and material selection.

The implementation of a materials inventory will be investigated by the Design Team to itemise all materials and/or products to be used, and the potential for these materials to be re-used, repurposed, recycled or otherwise disposed.

Internal fixtures, fittings and equipment are those with the shortest lifespan, and therefore the replacement of these should be considered as a high priority, and materials which are biodegradable or highly recyclable taking precedent over alternatives to minimise the impact of the more consumable items within the Proposed Development.

The consideration of the materials used on the site have been selected on multiple basis including the potential for re-use at the end of the building's useful life. Where sustainable options are not possible or available, high quality and durable materials are selected to ensure a long and maintenance free lifespan of the building, with appropriate elements being easily replaced or repaired where needed.

The predominant construction materials on the site are concrete and steel – all of which are potentially re-usable when the building reaches the end of its life. At present, it is estimated that ~92% of the materials used on site will be reusable, but the primary focus has been on providing a robust, durable, and long-lasting building structure.

It is also anticipated that, in line with the March 2022 GLA benchmarks, the Proposed Development will meet the following targets for diversion from landfill: 95%

reuse/recycling/recovery of construction waste, 95% beneficial use of excavation waste, and 65% recycling of municipal waste, with all waste sorted into the key EU waste groups.

Concrete foundations are the least re-usable element of the scheme. Piled foundations can reach up to 20m into the ground and will not be easily extractable or recoverable. However, these could well form the foundation for any other structure on the site if there is desire for a refurbishment or other use at the end of the life of this building. Concrete is inert and non-toxic in nature, and therefore the presence of these in the ground causes little-to-no lasting impacts.

Outlined below are the major, predominant building elements and materials included within the Proposed Development based on the currently assumed build outs for all elements, with predicted end-of-life scenarios and circularity.

Category	Total kg	Virgin %	Materials Recovered %	Downcycling and use as energy %	Recycling and reuse as material %	Materials returned %	Circularity %
Concrete	6,059,369.61	92.31	100	100	-	100	100
Metal	1,310,207.77	21.58	100	-	100	100	100
Bricks and ceramics	4,210.75	94	100	100	-	100	100
Gypsum-based	133,290.23	61.99	100	17.97	82.03	100	100
Insulation	123,118.42	26.02	100	-	-	-	50
Glass	63,125.69	91.53	100	-	100	100	100
Wood and biogenic	91.2	- 0	194.7	100	-	100	147.35
Earth masses and asphalt	2,411,942.42	92.02	100	-	39.88	39.88	69.94
Other materials	139,649.87	91.02	100	22.34	70.73	93.07	96.54

Table 6 - Major construction materials and EoL (End of Life) strategy

The majority of materials will be recycled off site by a licenced contractor at the time of dismantling/demolition. The concrete and asphalt materials are easily recyclable at EoL through crushing and use as recycled content and secondary aggregate for future building materials. The steel re-bar will have recycled quantities of >97% and has full EoL recyclability potential. Materials such as the gypsum plasterboard, will need to be recycled off site by a licenced contractor at the time of dismantling/demolition, for reuse. Insulations, from natural substances, will most likely be segregated and diverted from landfill through re-use elsewhere or through energy recovery. Brickwork could either be reused on other sites or crushed and used as recycled content.

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Strategy for Implementation

7.0 Strategy for Implementation

7.1 Existing Site

Following a Circular Economy workshop with the Design Team, it was confirmed that a pre-demolition waste audit will be undertaken by an appropriate individual to identify opportunities for reuse, recycling or recovery, disposal, and opportunities for reuse within the development works. Current opportunities planned to be highlighted within this statement include:

- Reuse of site materials, hoardings, boarding and cabins from previous sites.
- Soft strip of existing building to remove items of potential value and to aid recycling.
- Excavated materials (minimal) to be reused elsewhere on site (as part of planting plant for example).
- Crushing of building materials with as much as possible used within the proposed development where this is practicable.

7.2 New Development

The Proposed Development of the site will follow best practice in terms of building design, construction methods and operational energy (and therefore CO_2 emissions) requirements. The proposed building design will be designed with the Building in Layers methodology in mind and refined throughout the building process to enhance its efficiency.

The application of the Building in Layers strategy and circular economy principles will continue to be embedded within the future design process and will assist in the refinement of the overall site design and its efficiency. The circular economy ambitions outlined within this statement will be embedded within the future brief for detailed design and construction.

The engagement of key stake holders will continue to be required throughout the design process, and the materials procurement, and waste management. Consultation and engagement with Circular Economy principles has been and will be sought from the following team members:

- Principal Contractor and supporting team (estimators etc)
- Architect
- Structural Engineer
- Waste Consultant
- M&E Consultant
- Client

Please note that the above list is non-exhaustive and input from other members of the team may be required at key times. As mentioned previously, a Circular Economy Workshop was held on 11th August 2026, with the aim of establishing goals regarding waste and principles of circularity within the new construction. Post-meeting notes can be found in Appendix B of this report.

7.3 Operational Waste

Operational waste storage for the Proposed Development has been based on the guidance provided by the Hillingdon Borough Council Local Plan and the London Plan (March 2022

Circular Economy Guidance). This guidance was seen as the most relevant advice for the site given the proposed use and occupancy.

Internal bins that allow for the segregation of general waste and dry recyclable waste will be provided within the buildings to actively facilitate recycling throughout the site. This will be accompanied with appropriate signage and information provided to building users.

Communal stores will be built in line with council guidelines to provide sufficient waste storage for building users. Additionally, they will be monitored regularly to check waste levels and ensure that sufficient storage is provided for both general and recyclable waste streams. Where the storage is evidently insufficient (e.g., there is an overspill of waste onto the floor surrounding containers), investigations will be undertaken to determine the level of recycling within the building, and how this can be increased to reduce general waste output.

Further information may be required to be issued to the building users to further enhance waste reduction and recycling rates, the contents of which will be discussed within the Management Team when needed.

This waste will be continually monitored by building managers against advice from LHB Borough Council to ensure waste provision is adequate.

7.4 Post Completion Report

In line with the requirements of the GLA, a post-completion report will be provided to show progress against all numerical targets outlined within this report with updated waste information and Bill of Quantities. This will be secured by planning conditions in stages as appropriate.

Conclusion

8.0 Conclusion

This Circular Economy Statement demonstrates the sustainability measures incorporated within the design of the Proposed Development at 1 & 2 Longwalk Road, Stockley Park, Hillingdon. It details the adoption of Circular Economy principles throughout the design, construction, and operation of the Proposed Development.

Through the incorporation of fundamental sustainability principles, the Proposed Development has:

- Demonstrated how materials have been selected on site based on longevity and/or environmental impact.
- Shown how waste generated from site will be targeted, reduced, and managed appropriately in line with the waste hierarchy.
- Adopted a flexible and adaptable design which will meet the needs of the present and future.
- Specified materials which are appropriate to their intended use and take account of durability and longevity.
- Used ‘Building in Layers’ principles to ensure that elements needing replacing within a shorter time period can do so easily.
- Considered operational waste generation and provided adequate internal and external storage, in addition to providing information to future occupants about the reduction of waste from consumable items and the impacts this has.
- Considered end of life impacts and the potential for material re-use following building disassembly.

Through a considered approach to fundamental sustainability principles and Circular Economy, the Proposed Development responds positively to the requirements and principles of this policy. A combination of design, construction, operation, and end-of-life measures have been adopted to ensure the Proposed Development is mitigating negative impacts and utilising a circular economy at every stage.

Appendices

Appendix A – Proposed Site Plan

Schedule of Accommodation

Unit 100		
Warehouse Area	55,359 ft²	5,143 m²
Ground Floor Core	1,410 ft²	131 m²
Ground Floor Escape Stair	291 ft²	27 m²
First Floor Office	8,084 ft²	751 m²
Total GIA Area	**65,144 ft²**	**6,052 m²**

Unit 100		
Warehouse Area	56,554 ft²	5,254 m²
Ground Floor Core	1,518 ft²	141 m²
Ground Floor Escape Stair	323 ft²	30 m²
First Floor Office	8,428 ft²	783 m²
Total GEA Area	**66,823 ft²**	**6,208 m²**

Unit 200		
Warehouse Area	44,455 ft²	4,130 m²
Ground Floor Core	1,098 ft²	102 m²
North GF Escape Stairs	291 ft²	27 m²
South GF Escape Stairs	291 ft²	27 m²
First Floor Office	7,190 ft²	668 m²
Total GIA Area	**53,325 ft²**	**4,954 m²**

Unit 200		
Warehouse Area	45,510 ft²	4,228 m²
Ground Floor Core	1,141 ft²	106 m²
North GF Escape Stairs	323 ft²	30 m²
South GF Escape Stairs	323 ft²	30 m²
First Floor Office	7,535 ft²	700 m²
Total GEA Area	**54,832 ft²**	**5,094 m²**

Total GIA Area	**118,469 ft²**	**11,006 m²**
Total GEA Area	**121,655 ft²**	**11,302 m²**

Site Area	**6.26 acres**	**2.53 ha**



Appendix B – Circular Economy Workshop Meeting Notes

CE workshop	**Date:** 11th August 2026	**Attendees:** – Charles Frost - Project Manager (Zinc) – Mark Thomas - Architect (UMC architects) – Jim Frisby - MEP (Chord consult) – Rachel Sherratt - Landscape (Exterior architecture) – Luke Johnson - CDM Consultant (Pulse Consult) – Lamya Salem - Sustainability Director (SRE)	**Carried out by:** Lamya Salem (SRE)
	Information Required		Comments
Client name	Name	Royal UK Property Holdings LLP	-
Project information	Address	1 & 2 Longwalk Road, Stockley Park, Hillingdon	-
	Project type	New Construction	-
	Scope of works	WLCA & CE	-
Project team and appointments	Planning consultant	DARA Planning	
	Project Management	Zinc	-
	Architect / designer	UMC	-
	MEP	Chord consult	-
	Main Contractor	-	Project team confirmed the Main Contractor is to be appointed after planning.
	Demolition contractor	-	Project team confirmed the Demolition Contractor is to be appointed after planning.

	Information Required		Comments
Building information	Building type(s)	Flexible industrial, storage and distribution uses (Use Classes B2/B8/E(g)(iii))	Redevelopment of the site to provide two commercial units for flexible industrial, storage and distribution uses (Use Classes B2/B8/E(g)(iii)), with ancillary office space, yard areas, servicing, vehicular and cycle parking; hard and soft landscaping and associated works.
	Location	London Borough of Hillingdon	-
	GIA (m2)	11,006	Area as confirmed by Architect
Assessments	BREEAM	-	BREEAM New Construction V7
	Building in Layers appraisal / assessment	N/A	-
	Excavation materials options assessment	Details requested	Some of the excavated material will be used for backfilling. Quantities will be confirmed at a later stage.
Documentation available	Architectural Design	Received from the Architect	-
	Pre-Demolition audit	Demolition is taking place on-site; hence, this report is required.	Project team confirmed that a Demolition Contractor, with the relevant certification, will be appointed to produce the audit before any works begin on-site.
	Site Waste Management Plan (SWMP) including a waste forecast (from excavation, demolition and construction)	Confirmation required	Project team confirmed that a Site Waste Management Plan has not yet been produced and will be undertaken at a later stage.
	Resource Management Plan (RMP) outlining all site requirements with regards to energy, water and waste (expected consumption and targets)	Confirmation required	Project team confirmed that a Resource Management Plan has not yet been produced, but confirmed that energy, water and waste usage and will be undertaken at a later stage.

	Information Required		Comments
Design	M&E Design	MEP Initial assumptions?	– Mechanical Ventilation and Heat Recovery (MVHR) is to be installed within the office zones. – High efficient VRF unit will be used for office cooling. – Anticipated that the plant room is to be located on the ground floor. – Installation of electric radiators has been considered for space heating. – Point if use electric heaters has been considered for water heating. – LED lighting fixtures with motion and daylight sensors.
	Does the project comply with Guidelines of the Local Council	Confirmation required	Project will comply London Plan 2021 and Hillingdon Local Plan (2021)
	Are any LZC / renewable technologies included?	Roof PV - Area/Quantity?	PV will be located on the rooftop of the building. Area to be confirmed at a later stage.
	Information about bins, skips, waste storage area, waste collections (during the project)	Area for refuse space?	Refuse space to be provided on ground floor, with segregation of different waste streams. Area to be confirmed.
	Information about bins, skips, waste storage area, waste collections (during operation)	Internal / external if applicable	Operational waste collection area to be confirmed.
Opportunities for circularity and waste reduction	Reuse of materials and elements onsite	Request Details	Demolition waste will be crushed and used as aggregate on-site for pilling cap.
	Reuse of materials and elements offsite	Request Details	Recycled crushed material (Type 1) for hardstanding and piling mat.

	Information Required		Comments
Opportunities for circularity and waste reduction	Discuss designing for adaptability and disassembly – including any scenario modelling	Request Details	The client does not anticipate that the building will require re-purposing or requiring a change of use throughout its lifetime. The use of a reinforced concrete and steel framed construction is a key factor on ensuring that the internal space remains as flexible as possible in the future, allowing the internal layout to be repurposed in the future to meet changing local needs.
	Discuss how the scheme can go above and beyond standard commitments	Concrete with GGBS of 30%-50%, structural steel 90% recycled content, aluminium cladding 70% recycled content.	Project team confirmed that they will maximize construction material with recycled content, including steel reinforcement with 97% recycled content and steel profiles with 90% recycled content. A detailed list of other recycled content for construction materials has been confirmed by the design team.
Additional information	Energy targets	(if this is not included in SWMP/RMP)	Project team confirmed that SWMP produced will include energy targets.
	Water targets	(if this is not included in SWMP/RMP)	Project team confirmed that SWMP produced will include watery targets.
	Waste targets - waste produced / waste reduction	(if this is not included in SWMP/RMP)	Project team confirmed that SWMP produced will include waste targets.
	Waste diverted from landfill target	(if this is not included in SWMP/RMP)	Project team confirmed that SWMP produced will include diversion from landfill targets.

Appendix C – Recycling and Waste Reporting Table

		Total estimates of waste				Waste management route						Summary			
	Type of Waste	Source of information	Overall waste (tonnes)	Overall waste (tonnes/ m^2 GIA)	Performance Indicator (LPG Appendix 1)	Reuse onsite (%)	Reuse offsite (%)	Recycle onsite (%)	Recycle offsite (%)	To landfill (%)	To other management (%)	Total reuse (%)	Total recycle (%)	Total reuse and recycle (%)	Total waste reported (%)
	PRODUCT AND CONSTRUCTION STAGE (MODULE A)														
1	Demolition														
2	Excavation														
3	Construction														
	USE STAGE (MODULE B)*														
3	Demolition / Strip-out														
4	Construction														
	Type of Waste	Source of information	Overall waste (tonnes/ annum)	Overall waste (tonnes/ annum/ m^2)	Performance indicator (LPG Appendix 1)	Reuse onsite (%)	Reuse offsite (%)	Recycle onsite (%)	Recycle offsite (%)	To landfill (%)	To other management (%)	Total reuse (%)	Total recycle (%)	Total reuse and recycle (%)	Total waste reported (%)
5	Municipal														
6	Industrial (if applicable)														
	MODULE A – MODULE C*														
		Source of information	Overall materials (tonnes)	Overall materials (modules A-C) (tonnes/ m^2)	-	Reuse onsite (%)	Reuse offsite (%)	Recycle onsite (%)	Recycle offsite (%)	To landfill	To other management (%)	Total reuse (%)	Total recycle (%)	Total reuse and recycle (%)	Total waste reported (%)
7	Total materials														

Appendix D – Recycled Content Detailed Calculations

Material	Quantity	Unit	Unit Cost (£)	Total Cost (£)	Recycled Content %	Cost of Recycled Content (£)
Substructure						
Self-levelling screed for commercial and domestic building floors, 1 mm, 2.23 kg/m2, Gyvlon® XTR, XTR SP, XTR FD E2C (Anhydritec)	48.50	m2	1.54	74.63	100.0	74.63
Reinforcement steel (rebar), generic, 97% recycled content (typical), A615 (One Click LCA)	20.70	ton	1,070.00	22,149.00	97.0	21,484.53
Reinforcement steel (rebar), generic, 97% recycled content (typical), A615 (One Click LCA)	0.19	m3	8,399.50	1,562.31	100.0	1,562.31
Reinforcement steel (rebar), generic, 97% recycled content (typical), A615 (One Click LCA)	11.55	ton	1,070.00	12,358.50	97.0	11,987.75
Reinforcement steel (rebar), generic, 97% recycled content (typical), A615 (One Click LCA)	0.14	m3	8,399.50	1,209.53	100.0	1,209.53
Reinforcement steel (rebar), generic, 97% recycled content (typical), A615 (One Click LCA)	278.29	ton	1,070.00	297,770.30	97.0	288,837.19
Reinforcement steel (rebar), generic, 97% recycled content (typical), A615 (One Click LCA)	0.29	m3	8,399.50	2,444.25	100.0	2,444.25
Ready-mix concrete, normal-strength, generic, C35/45 (5075/6525 PSI), XD3, 50% GGBS in binder (399 kg/m3 binder, CEM I + additions), 2369 kg/m3, (version 2026) (One Click LCA)	77.00	m3	131.69	10,140.13	8.4	853.80
Ready-mix concrete, normal-strength, generic, C35/45 (5075/6525 PSI), XD3, 50% GGBS in binder (399 kg/m3 binder, CEM I + additions), 2369 kg/m3, (version 2026) (One Click LCA)	1,855.24	m3	131.69	244,316.56	8.4	20,571.45

Material	Quantity	Unit	Unit Cost (£)	Total Cost (£)	Recycled Content %	Cost of Recycled Content (£)
Ready-mix concrete, normal-strength, generic, C32/40 (4640/5800 PSI), XC1, 15% GGBS in binder (372 kg/m3 binder, CEM I + additions), 2375 kg/m3, (version 2026) (One Click LCA)	9.70	m3	131.69	1,277.39	100.0	1,277.39
Ready-mix concrete, normal-strength, generic, C32/40 (4640/5800 PSI), XC1, 15% GGBS in binder (372 kg/m3 binder, CEM I + additions), 2375 kg/m3, (version 2026) (One Click LCA)	4.80	m3	131.69	632.11	100.0	632.11
Ready-mix concrete, normal-strength, generic, C28/35 (4060/5075 PSI), XC1, 15% GGBS in binder (335 kg/m3 binder, CEM I + additions), 2370 kg/m3, (version 2026) (One Click LCA)	6.20	m3	131.69	816.48	100.0	816.48
Sand, loose dry density, 1555 kg/m3, (version 2026) (One Click LCA)	1,449,990.85	kg	0.32	458,197.11	100.0	458,197.11
Ready-mix concrete, normal-strength, generic, C28/35 (4060/5075 PSI), XC1, 50% GGBS in binder (335 kg/m3 binder, CEM I + additions), 2361 kg/m3, (version 2026) (One Click LCA)	207.00	m3	131.69	27,259.83	7.1	1,932.72
Frame						
Structural steel profiles, generic, 60% recycled content, I, H, U, L, and T sections, S235, S275 and S355 (One Click LCA)	328,498.90	kg	2.65	870,522.08	90.0	783,469.87
Glass wool insulation in bats or rolls, unfaced, L = 0.041 W/mK, R = 2.38 m2K/W, 100mm, 0.5 kg/m2, 5kg/m3, (Range: 0-10kg/m3), 50% recycled glass content (One Click LCA)	9,610.12	m2	10.80	103,789.30	50.0	51,894.65
Glass wool insulation in bats or rolls, unfaced, L = 0.041 W/mK, R = 2.38 m2K/W, 100mm, 0.5 kg/m2, 5kg/m3, (Range: 0-10kg/m3), 50% recycled glass content (One Click LCA)	48.50	m2	10.80	523.80	100.0	523.80
Ready-mix concrete, normal-strength, generic, C40/50 (5800/7250 PSI), XC1, 15% fly ash in binder (419 kg/m3 binder, CEM I + additions), 2367 kg/m3, (version 2026) (One Click LCA)	1.70	m3	131.69	223.87	100.0	223.87
Galvanized profiled steel decking, for roof, 1.25 mm sheet thickness, 19.19 kg/m2, RoofDek D159 1.25mm (Tata Steel Europe (2023))	9,610.12	m2	38.38	368,836.41	70.0	258,185.49

Material	Quantity	Unit	Unit Cost (£)	Total Cost (£)	Recycled Content %	Cost of Recycled Content (£)
Ready-mix concrete, normal-strength, generic, C32/40 (4640/5800 PSI), XC1, 50% GGBS in binder (372 kg/m3 binder, CEM I + additions), 2366 kg/m3, (version 2026) (One Click LCA)	195.82	m3	131.69	25,787.54	7.9	2,029.48
Ready-mix concrete, normal-strength, generic, C32/40 (4640/5800 PSI), XC1, 15% GGBS in binder (372 kg/m3 binder, CEM I + additions), 2375 kg/m3, (version 2026) (One Click LCA)	9.70	m3	131.69	1,277.39	100.0	1,277.39
Concrete masonry unit (CMU), 198 kg/m2, Synerg·Eco, Stranlite (Plasmor Limited)	366.19	m2	61.38	22,476.74	4.6	1,044.55
Concrete masonry unit (CMU), 198 kg/m2, Synerg·Eco, Stranlite (Plasmor Limited)	19.18	m2	61.38	1,176.96	100.0	1,176.96
Concrete masonry unit (CMU), 198 kg/m2, Synerg·Eco, Stranlite (Plasmor Limited)	182.50	m2	61.38	11,201.85	4.6	520.58
Structural steel profiles, generic, 60% recycled content, I, H, U, L, and T sections, S235, S275 and S355 (One Click LCA)	339,528.00	kg	2.65	899,749.20	60.0	539,849.52
Ready-mix concrete, low-strength, generic, C12/15 (1740/2175 PSI), X0, 15% fly ash in binder (245 kg/m3 binder, CEM I + additions), 2352 kg/m3, (version 2026) (One Click LCA)	1.62	m3	131.69	213.34	100.0	213.34
Upper Floors						
Reinforcement steel (rebar), generic, 97% recycled content (typical), A615 (One Click LCA)	24.48	ton	1,070.00	26,193.60	97.0	25,407.79
Reinforcement steel (rebar), generic, 97% recycled content (typical), A615 (One Click LCA)	0.29	m3	8,399.50	2,444.25	100.0	2,444.25
Reinforcement steel (rebar), generic, 97% recycled content (typical), A615 (One Click LCA)	0.05	m3	8,399.50	430.31	100.0	430.31
Steel straight staircase, width: 1.2 m, for height: 2.7 m, 670 kg/unit (One Click LCA)	5.00	unit	1,340.00	6,700.00	70.0	4,690.00

Material	Quantity	Unit	Unit Cost (£)	Total Cost (£)	Recycled Content %	Cost of Recycled Content (£)
Roof						
Polyethylene vapour barrier membrane, 0.15 mm, 0.14 kg/m2 (One Click LCA)	48.50	m2	3.80	184.30	100.0	184.30
Waterproofing membranes, calculated average for United Kingdom, 1.52 mm, 1.5 kg/m2 (One Click LCA)	9,610.12	m2	29.00	278,693.48	3.5	9,616.19
Waterproofing membranes, calculated average for United Kingdom, 1.52 mm, 1.5 kg/m2 (One Click LCA)	48.50	m2	29.00	1,406.50	100.0	1,406.50
External Wall						
Cold rolled galvanised steel frames for walls, ceilings and linings, 0.8-0.9 mm (Etex Building Performance Limited)	52,350.00	kg	2.00	104,700.00	54.4	56,956.80
Cold rolled galvanised steel frames for walls, ceilings and linings, 0.8-0.9 mm (Etex Building Performance Limited)	770.00	kg	2.00	1,540.00	100.0	1,540.00
Gypsum plaster board, regular, 50% recycled gypsum, 6.5-25 mm (0.25-0.98 in), 10.725 kg/m2 (2.20 lbs/ft2) (for 12.5 mm/0.49 in), 858 kg/m3 (53.6 lbs/ft3) (One Click LCA)	6,465.00	m2	13.50	87,277.50	53.2	46,431.63
Gypsum plaster board, regular, 50% recycled gypsum, 6.5-25 mm (0.25-0.98 in), 10.725 kg/m2 (2.20 lbs/ft2) (for 12.5 mm/0.49 in), 858 kg/m3 (53.6 lbs/ft3) (One Click LCA)	94.63	m2	13.50	1,277.49	100.0	1,277.49
Polyethylene vapour barrier membrane, 0.15 mm, 0.14 kg/m2 (One Click LCA)	94.63	m2	3.80	359.59	100.0	359.59
Aluminium façade cladding panel, anodized, 7.5 kg/m2, 70% recycled content (One Click LCA)	6,465.00	m2	49.35	319,047.75	70.0	223,333.43
Aluminium façade cladding panel, anodized, 7.5 kg/m2, 70% recycled content (One Click LCA)	94.63	m2	49.35	4,669.94	100.0	4,669.94
Aluminium framed stick curtain wall system with clear float glass insulating unit, double glazed, 4-16-4, 36.4 kg/m2, 50% recycled aluminium (One Click LCA)	1,736.13	m2	1,030.00	1,788,213.90	8.5	151,476.87

Material	Quantity	Unit	Unit Cost (£)	Total Cost (£)	Recycled Content %	Cost of Recycled Content (£)
Unfaced stone wool insulation, calculated average for United Kingdom, L= 0.031-0.045 W/mK, 100 mm, 9 kg/m2 (One Click LCA)	6,465.00	m2	16.35	105,702.75	75.0	79,277.06
Unfaced stone wool insulation, calculated average for United Kingdom, L= 0.031-0.045 W/mK, 100 mm, 9 kg/m2 (One Click LCA)	94.63	m2	16.35	1,547.20	100.0	1,547.20
External Door						
Aluminium frame window double-glazed, operable(tilt and turn), 50% recycled aluminium, 1.48 m x 2.18 m, 25.3 kg/m2 (One Click LCA)	1,247.00	m2	555.00	692,085.00	30.0	207,625.50
Internal Wall						
Gypsum plaster board, regular, 50% recycled gypsum, 6.5-25 mm (0.25-0.98 in), 10.725 kg/m2 (2.20 lbs/ft2) (for 12.5 mm/0.49 in), 858 kg/m3 (53.6 lbs/ft3) (One Click LCA)	1,040.54	m2	13.50	14,047.29	53.2	7,473.16
Gypsum plaster board, regular, 50% recycled gypsum, 6.5-25 mm (0.25-0.98 in), 10.725 kg/m2 (2.20 lbs/ft2) (for 12.5 mm/0.49 in), 858 kg/m3 (53.6 lbs/ft3) (One Click LCA)	114.45	m2	13.50	1,545.08	100.0	1,545.08
Galvanized steel stud framing profiles per m2 (air gap included), UD and CD profiles included, wing width: 6 mm, flange width:50 mm, steel thicnkess:0.6 mm (23 gauge), 450 mm spacing, 2.4 kg/m2, 70% recycled content (One Click LCA)	520.27	m2	4.80	2,497.30	70.0	1,748.11
Galvanized steel stud framing profiles per m2 (air gap included), UD and CD profiles included, wing width: 6 mm, flange width:50 mm, steel thicnkess:0.6 mm (23 gauge), 450 mm spacing, 2.4 kg/m2, 70% recycled content (One Click LCA)	57.23	m2	4.80	274.68	100.0	274.68
Acoustic glass mineral wool roll insulation, 0.04 W/mK, 1.6 m2K/W, 65 mm, 0.84 kg/m2, 12.9 kg/m3, Lambda=0.04 W/(m.K), Isover Acoustic Partition Roll (APR 1200) (Saint-Gobain Isover UK Limited)	520.27	m2	10.80	5,618.92	52.0	2,921.84

Material	Quantity	Unit	Unit Cost (£)	Total Cost (£)	Recycled Content %	Cost of Recycled Content (£)
Acoustic glass mineral wool roll insulation, 0.04 W/mK, 1.6 m2K/W, 65 mm, 0.84 kg/m2, 12.9 kg/m3, Lambda=0.04 W/(m.K), Isover Acoustic Partition Roll (APR 1200) (Saint-Gobain Isover UK Limited)	57.23	m2	10.80	618.08	100.0	618.08
Internal Door						
Wooden internal door excluding frame, unglazed, 0.762mx1.981m, 7.75 kg/m2 (JELD-WEN)	55.00	m2	360.00	19,800.00	23.3	4,613.40
Finish						
Special gypsum plasterboard, calculated average for United Kingdom, 12.5 mm, 15 kg/m2 (One Click LCA)	1,772.92	m2	82.50	146,265.90	25.0	36,566.48
Carpet tiles with recycled dyed nylon yarn, 3.78 kg/m2, go to (Burmatex)	1,561.72	m2	30.50	47,632.31	9.0	4,286.91
FFE						
Kitchen worktop from particleboard with decorative HPL laminate and HDF strip, 22.8 kg/m2, Kronodesign Worktop (Kronospan Ltd.)	4.00	m2	17.25	69.00	96.7	66.72
Systems						
Galvanized steel ventilation duct, circular, DN 100 mm, (4 in), 1.3 kg/m, wall thickness: 0.5 mm (One Click LCA)	195.63	m	10.60	2,072.65	70.0	1,450.86
Galvanized steel ventilation duct, circular, DN 100 mm, (4 in), 1.3 kg/m, wall thickness: 0.5 mm (One Click LCA)	5.77	m	10.60	61.15	70.0	42.81
Concealed fire sprinkler for residential buildings, K-factor: 4.9, max working pressure: 12 bar (175 psi), thread size: 1/2 in (12.7 mm) NPT, 210 g/unit, 3.8% Recycled material (One Click LCA)	892.00	unit	33.00	29,436.00	3.8	1,114.36
LED luminaire, batten shaped, 2.78 kg/unit, Trimpak Vitality - 1440 mm (Whitecroft Lighting)	2,262.00	unit	124.00	280,488.00	11.7	32,817.10
Electric wall-mounted shower with thermostatic temperature control, 3.75 kg/unit (Triton Showers)	6.00	unit	487.50	2,925.00	29.0	848.25

Material	Quantity	Unit	Unit Cost (£)	Total Cost (£)	Recycled Content %	Cost of Recycled Content (£)
Site						
Concrete paving block for outdoor surfaces, 80 mm, 184 kg/m2, Modal X (Marshalls Plc)	1,833.78	m2	51.52	94,476.35	0.6	585.75
Stone composite slabs, calculated average for United Kingdom, 16.5 mm, 25 kg/m2 (One Click LCA)	168.43	m2	96.50	16,253.50	6.0	975.21
Asphalt concrete surface course, hot mix, 10 mm nominal aggregate size (One Click LCA)	14.11	m2	56.40	795.86	20.0	159.17
Asphalt concrete surface course, hot mix, 10 mm nominal aggregate size (One Click LCA)	4,079.30	m2	56.40	230,072.52	20.0	46,014.50
Total Cost of Recycled Content						**3,415,088.10**

Appendix E – SRE Assumptions

Class	Resource	Material quantity	Unit
Foundation	Self-levelling screed for commercial and domestic building floors, 1 mm, 2.23 kg/m2, Gyvlon® XTR, XTR SP, XTR FD E2C (Anhydritec)	9276.2	m2
Foundation	Self-levelling screed for commercial and domestic building floors, 1 mm, 2.23 kg/m2, Gyvlon® XTR, XTR SP, XTR FD E2C (Anhydritec)	48.5	m2
Foundation	Ready-mix concrete, RC28/35 with 50% GGBS cement	207	m3
Foundation	Sand, compacted dry density, 1682 kg/m3 (One Click LCA)	9276.2	m2
Foundation	Sand, compacted dry density, 1682 kg/m3 (One Click LCA)	48.5	m2
Foundation	Ready-mix concrete, RC32/40 with 50% GGBS cement	77	m3
Foundation	Ready-mix concrete, RC32/40 with 50% GGBS cement	1855.24	m3
Foundation	Ready-mix concrete, RC32/40 with 15% PFA cement	9.7	m3
Foundation	Reinforcement steel (rebar), generic, 97% recycled content (typical), A615 (One Click LCA)	20.7	ton
Foundation	Reinforcement steel (rebar), generic, 97% recycled content (typical), A615 (One Click LCA)	0.186	m3
Foundation	Reinforcement steel (rebar), generic, 97% recycled content (typical), A615 (One Click LCA)	11.55	ton
Foundation	Reinforcement steel (rebar), generic, 97% recycled content (typical), A615 (One Click LCA)	0.144	m3
Foundation	Reinforcement steel (rebar), generic, 97% recycled content (typical), A615 (One Click LCA)	278.29	ton
Foundation	Reinforcement steel (rebar), generic, 97% recycled content (typical), A615 (One Click LCA)	0.291	m3
Foundation	Ready-mix concrete, RC28/35 with 15% PFA cement	6.2	m3
Foundation	Ready-mix concrete, RC32/40 with 15% PFA cement	4.8	m3
Beam	Structural steel profiles, generic, 90% recycled content, I, H, U, L, and T sections, S235, S275 and S355 (One Click LCA)	328498.9	kg
Beam	Ready-mix concrete, normal-strength, generic, C40/50 (5800/7250 PSI), XC1, 15% fly ash in binder (419 kg/m3 binder, CEM I + additions), 2367 kg/m3, (version 2026) (One Click LCA)	1.7	m3
Column	Concrete masonry unit (CMU), 198 kg/m2, Synerg·Eco, Stranlite (Plasmor Limited)	366.19	m2
Column	Concrete masonry unit (CMU), 198 kg/m2, Synerg·Eco, Stranlite (Plasmor Limited)	19.175	m2
Column	Concrete masonry unit (CMU), 198 kg/m2, Synerg·Eco, Stranlite (Plasmor Limited)	182.5	m2
Column	Ready-mix concrete, generic, C12/15 (1700/2200 PSI), X0, CEM III/A blast furnace cement 50% GGBS content, 2367 kg/m3 (One Click LCA)	1.62	m3

Class	Resource	Material quantity	Unit
Column	Reinforcement steel (rebar), generic, 97% recycled content (typical), A615, (version 2018) (One Click LCA)	0.0486	m3
Column	Structural steel profiles, generic, 90% recycled content, I, H, U, L, and T sections, S235, S275 and S355 (One Click LCA)	339528	kg
Roof	Galvanized steel roof deck, 0.9 mm, 12.41 kg/m2, RoofDek D100 (Tata Steel Europe)	9610.12	m2
Roof	Glass wool insulation in bats or rolls, unfaced, L = 0.041 W/mK, R = 2.38 m2K/W, 100mm, 0.5 kg/m2, 5kg/m3, (Range: 0-10kg/m3), 50% recycled glass content (One Click LCA)	9610.12	m2
Roof	Glass wool insulation in bats or rolls, unfaced, L = 0.041 W/mK, R = 2.38 m2K/W, 100mm, 0.5 kg/m2, 5kg/m3, (Range: 0-10kg/m3), 50% recycled glass content (One Click LCA)	48.5	m2
Roof	Polyethylene vapour barrier membrane, 0.15 mm, 0.14 kg/m2 (One Click LCA)	9610.12	m2
Roof	Polyethylene vapour barrier membrane, 0.15 mm, 0.14 kg/m2 (One Click LCA)	48.5	m2
Roof	Waterproofing membranes, calculated average for United Kingdom, 1.52 mm, 1.5 kg/m2 (One Click LCA)	9610.12	m2
Roof	Waterproofing membranes, calculated average for United Kingdom, 1.52 mm, 1.5 kg/m2 (One Click LCA)	48.5	m2
Roof	Ready-mix concrete, RC32/40 with 15% PFA cement	9.7	m3
Roof	Reinforcement steel (rebar), generic, 97% recycled content (typical), A615 (One Click LCA)	0.291	m3
Slab	Ready-mix concrete, RC32/40 with 50% GGBS cement	195.82	m3
Slab	Reinforcement steel (rebar), generic, 97% recycled content (typical), A615 (One Click LCA)	24.48	ton
External wall	Cold rolled galvanised steel frames for walls, ceilings and linings, 0.8-0.9 mm (Etex Building Performance Limited)	52350	kg
External wall	Cold rolled galvanised steel frames for walls, ceilings and linings, 0.8-0.9 mm (Etex Building Performance Limited)	770	kg
External wall	Gypsum plaster board, regular, 50% recycled gypsum, 6.5-25 mm (0.25-0.98 in), 10.725 kg/m2 (2.20 lbs/ft2) (for 12.5 mm/0.49 in), 858 kg/m3 (53.6 lbs/ft3) (One Click LCA)	6465	m2
External wall	Gypsum plaster board, regular, 50% recycled gypsum, 6.5-25 mm (0.25-0.98 in), 10.725 kg/m2 (2.20 lbs/ft2) (for 12.5 mm/0.49 in), 858 kg/m3 (53.6 lbs/ft3) (One Click LCA)	94.629	m2
External wall	Polyethylene vapour barrier membrane, 0.15 mm, 0.14 kg/m2 (One Click LCA)	6465	m2
External wall	Polyethylene vapour barrier membrane, 0.15 mm, 0.14 kg/m2 (One Click LCA)	94.63	m2
External wall	Stone wool insulation, L = 0.034 W/mK, 200 mm, 15 kg/m2, 75 kg/m3, Lambda=0.034 W/(m.K), FABROCK FIRE 75LR SL (Rockwool)	6465	m2
External wall	Stone wool insulation, L = 0.034 W/mK, 200 mm, 15 kg/m2, 75 kg/m3, Lambda=0.034 W/(m.K), FABROCK FIRE 75LR SL (Rockwool)	94.63	m2
External wall	Aluminium façade cladding panel, anodized, 7.5 kg/m2, 70% recycled content (One Click LCA)	6465	m2
External wall	Aluminium façade cladding panel, anodized, 7.5 kg/m2, 70% recycled content (One Click LCA)	94.629	m2

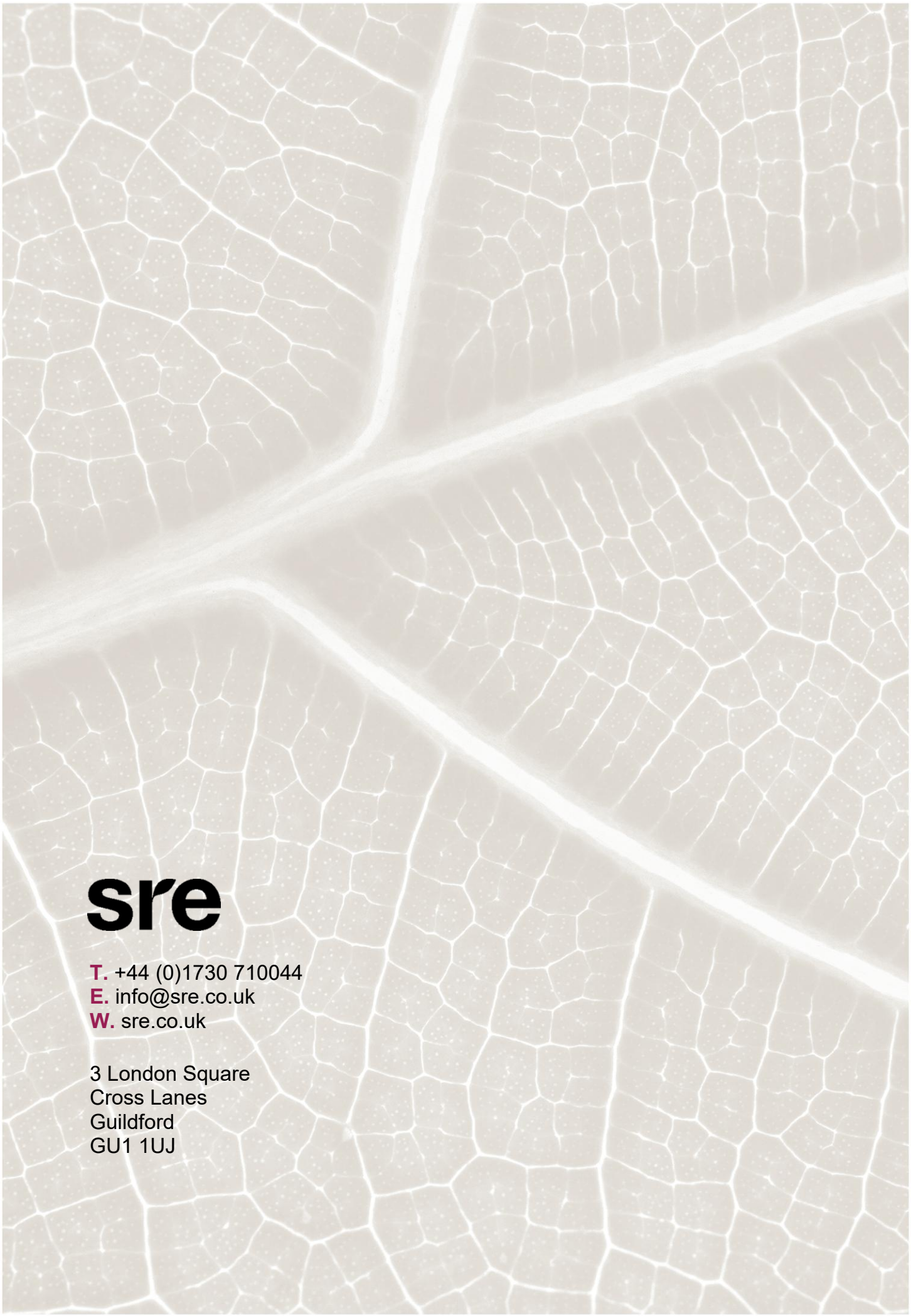
Class	Resource	Material quantity	Unit
Window	Aluminium framed stick curtain wall system with clear float glass insulating unit, double glazed, 4-16-4, 36.4 kg/m2, 50% recycled aluminium (One Click LCA)	1736.13	m2
Window	Aluminium frame window double-glazed, operable(tilt and turn), 50% recycled aluminium, 1.48 m x 2.18 m, 25.3 kg/m2 (One Click LCA)	1247	m2
Door	Wood interior door, for UK	55	m2
Door	Aluminium framed internal glazed single door system, 1805 mm x 2400 mm, 179 kg/unit, Flo-Motion® Single door E32 (Axis Entrance Systems Limited)	14	unit
Door	Overhead sectional metal door roller shutters, calculated average for United Kingdom, 2.5x2.5 m, 26 kg/m2, 162.5 kg/unit (One Click LCA)	79	m2
Internal wall	Gypsum plaster board, regular, 50% recycled gypsum, 6.5-25 mm (0.25-0.98 in), 10.725 kg/m2 (2.20 lbs/ft2) (for 12.5 mm/0.49 in), 858 kg/m3 (53.6 lbs/ft3) (One Click LCA)	1040.54	m2
Internal wall	Gypsum plaster board, regular, 50% recycled gypsum, 6.5-25 mm (0.25-0.98 in), 10.725 kg/m2 (2.20 lbs/ft2) (for 12.5 mm/0.49 in), 858 kg/m3 (53.6 lbs/ft3) (One Click LCA)	114.45	m2
Internal wall	Galvanized steel stud framing profiles per m2 (air gap included), UD and CD profiles included, wing width: 6 mm, flange width:50 mm, steel thicnkess:0.6 mm (23 gauge), 450 mm spacing, 2.4 kg/m2, 70% recycled content (One Click LCA)	520.27	m2
Internal wall	Galvanized steel stud framing profiles per m2 (air gap included), UD and CD profiles included, wing width: 6 mm, flange width:50 mm, steel thicnkess:0.6 mm (23 gauge), 450 mm spacing, 2.4 kg/m2, 70% recycled content (One Click LCA)	57.225	m2
Internal wall	Acoustic partition roll insulation, unfaced, L = 0.039 W/mK, R = 0.6 m2K/W, 25 mm, 0.6 kg/m2, 24 kg/m3, Lambda=0.039 W/(m.K), (APR 1200) 25mm (Saint-Gobain ISOVER UK)	520.27	m2
Internal wall	Acoustic partition roll insulation, unfaced, L = 0.039 W/mK, R = 0.6 m2K/W, 25 mm, 0.6 kg/m2, 24 kg/m3, Lambda=0.039 W/(m.K), (APR 1200) 25mm (Saint-Gobain ISOVER UK)	57.23	m2
Finish	Metal suspended ceiling system, for UK	1414.2	m2
Finish	Self-levelling screed for commercial and domestic building floors, 1 mm, 2.23 kg/m2, Gyvlon® XTR, XTR SP, XTR FD E2C (Anhydritec)	1417.2	m2
Finish	Vinyl floor covering, with updated One Click LCA generic data (2025)	82.2	m2
Finish	Acrylic water-based decorative emulsions for interior wall or ceiling surface, 0.1324 kg/m2, Flat Matt W (COAT paints)	1772.92	m2
Finish	Special gypsum plasterboard, calculated average for United Kingdom, 12.5 mm, 15 kg/m2 (One Click LCA)	1772.92	m2
Finish	Carpet tiles with recycled dyed nylon yarn, 3.78 kg/m2, go to (Burmatex)	1561.715	m2
Finish	Water repellent paints and coatings, calculated average for United Kingdom, 0.555 mm, 0.75 kg/m2 (One Click LCA)	152.8	m2

Class	Resource	Material quantity	Unit
Systems	Ceramic bathroom washbasin, 16.7 kg/unit, 850 × 460 × 150 mm (One Click LCA)	12	unit
Systems	Ceramic bathroom washbasin, 16.7 kg/unit, 850 × 460 × 150 mm (One Click LCA)	5	unit
Systems	Sewage water drainage piping network, per m2 GIFA, for factories and logistics buildings, 0.06 kg/m2 (One Click LCA)	10693	m2
Systems	Sewage water drainage piping network, per m2 GIFA, for factories and logistics buildings, 0.06 kg/m2 (One Click LCA)	48.5	m2
Systems	Roof integrated mono-crystalline photovoltaic module, per m2, 25 kg/panel, 1.95 m2/panel, 12.82 kg/m2, Clearline fusion PV16-405-M10 (Viridian Solar)	399.9	m2
Systems	Passenger elevators, calculated average for United Kingdom, 5000 kg/unit (One Click LCA)	2	unit
Systems	Panel multi-function power and energy analyzer for electrical monitoring, 3x230/400 V, 1 A, 5 A, 50/60 Hz, 0.40 kg/unit (One Click LCA)	10	unit
Systems	Luminaires, 0.841 kg/unit, exterior LED channel (Stoane Lighting)	134	unit
Systems	Luminaires, 0.841 kg/unit, exterior LED channel (Stoane Lighting)	1	unit
Systems	Emergency light, 2W, 600 MA, 200 lm, 0.55 kg/unit (One Click LCA)	702	unit
Systems	Emergency light, 2W, 600 MA, 200 lm, 0.55 kg/unit (One Click LCA)	4	unit
Systems	Electricity distribution system, cabling and central, for all building types, per m2 GFA (One Click LCA)	10693	m2
Systems	Drinking water supply piping network, per m2 GIFA (factories and logistics buildings), 0.037 kg/m2 (One Click LCA)	10693	m2
Systems	Drinking water supply piping network, per m2 GIFA (factories and logistics buildings), 0.037 kg/m2 (One Click LCA)	48.5	m2
Systems	Concealed fire sprinkler for residential buildings, K-factor: 4.9, max working pressure: 12 bar (175 psi), thread size: 1/2 in (12.7 mm) NPT, 210 g/unit, 3.8% Recycled material (One Click LCA)	892	unit
Systems	Ceramic toilet set, 26.93 kg/unit (Ideal Standard International)	12	unit
Systems	Ceramic toilet set, 26.93 kg/unit (Ideal Standard International)	3	unit
Systems	Autonomous fire alarm, 0.192 kg/unit (One Click LCA)	2	unit
Systems	Recessed luminaire, 4.04 kg/unit, 600x600mm, L90@50000hrs, Cascade Flex (Whitecroft Lighting)	411	unit
Systems	LED batten luminaire for surface, suspended or trunking mounting, 1.75 kg/unit, 1200x59x78mm, L90@71000 hours, Trimpak (Whitecroft Lighting)	2262	unit
Systems	Ventilation system for office and care buildings, with updated One Click LCA generic data (2025)	1643.91	m2
Systems	Ventilation system for office and care buildings, with updated One Click LCA generic data (2025)	48.5	m2
Systems	Electric wall-mounted thermostatic shower, 1.82 kg/unit, Mira Minimal EV (Kohler Co.)	6	unit

Class	Resource	Material quantity	Unit
Systems	Ceramic shower tray, 33.3 kg/unit, 900 × 900 × 80 mm (One Click LCA)	6	unit
Systems	LED downlight luminaire, IP54, 94xØ220 mm, 13.2 W, 1440 lm, 0.92 kg/unit (One Click LCA)	13	unit
Systems	Wall-mounted electric panel radiator, 230 V, 50 Hz, 500–2000 W, 4.5 kg/unit (One Click LCA)	2	unit
Systems	Commercial air-to-water monobloc heat pump, air-to-water, monobloc, 65-110 kW, 140 kg/unit (One Click LCA)	2	unit
Other	Kitchen worktop from particleboard with decorative HPL laminate and HDF strip, 22.8 kg/m2, Kronodesign Worktop (Kronospan Ltd.)	4	m2
Other	Stainless steel inset kitchen sink system for kitchen installation, 9.9 kg/unit, Intra inset kitchen sinks (INTRA MÖLNTORP AB)	2	unit
Site	Natural stone paving tiles, thickness 100 mm (4 in)	168.43	m2
Site	Resin-bound decorative surface systems, 59.35 kg/m2, Terrabase (Addagrip Terraco Ltd)	132.8	m2
Site	Concrete paving block for outdoor surfaces, 80 mm, 184 kg/m2, Modal X (Marshalls Plc)	1833.78	m2
Site	Road asphalt, per m2, 3.5% binder content, 100mm depth surface or binder course, 235 kg/m2	3316.07	m2
Site	Road asphalt, per m2, 3.5% binder content, 100mm depth surface or binder course, 235 kg/m2	4079.3	m2

Appendix F – Key Material Groups

European Waste Catalogue	Key group	Examples
170102	Bricks	Bricks
170101	Concrete	Pipes, kerb stones, paving slabs, concrete rubble, precast and in situ
170604	Insulation	Glass fibre, mineral wool, foamed plastic
1501	Packaging	Paint pots, pallets, cardboard, cable drums, wrapping bands, polythene sheets
170201	Timber	Softwood, hardwood, board products such as plywood, chipboard, medium density fibreboard (MDF)
1602	Electrical and electronic equipment	Electrical and electronic TVs, fridges, air-conditioning units, lamps equipment
200301	Canteen/office	Office waste, canteen waste, vegetation
1301	Oils	Hydraulic oil, engine oil, lubricating oil
1703	Asphalt and tar	Bitumen, coal tars, asphalt
170103	Tiles and ceramics	Ceramic tiles, clay roof tiles, ceramic, sanitary ware
1701	Inert	Mixed rubble/excavation material, glass
1704	Metals	Radiators, cables, wires, bars, sheet
170802	Gypsum	Plasterboard, plaster, fibre cement sheets
170101	Binders	Render, cement, mortar
170203	Plastics	Pipes, cladding, frames, non-packaging sheet
200307	Furniture	Tables, chairs, desks, sofas
1705	Soils	Soils, clays, sand, gravel, natural stone
Most relevant EWC	Liquids	Non-hazardous paints, thinners, timber treatments
Most relevant EWC	Hazardous	Defined in the Hazardous Waste List (HWL) of the European Waste Catalogue (EWC)
Most relevant EWC	Floor coverings (soft)	Carpets, vinyl flooring
Most relevant EWC	Architectural features	Roof tiles, reclaimed bricks, fireplaces
170904 (Mixed)	Mixed/other	Efforts should be made to categorise waste into the above categories wherever possible.



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