

Land adjacent to Windhover Roundabout, Bursledon

Sustainability

Circular Economy Statement

March 2026

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Circular Economy Statement

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Executive Summary

Ramboll UK Limited has been appointed by Wates Developments Limited to prepare a Circular Economy Statement with respect to the application for outline planning permission for new storage and distribution development (Use Classes B2 and B8) at the Land adjacent to Windhover Roundabout, Bursledon.

This report presents an overview of the key circular economy principles relevant to the project to be considered at the subsequent design stages. An overall appraisal has been made of the structures on the existing site which have very limited potential for re-use, either as a structure or as material components.

This statement also provides an overview of BREEAM circularity related targets and evidence provided to the assessor in support of credits Waste 01, Waste 05, Waste 06, Materials 05 and Materials 06.

In addition, an estimated bill of quantities (BoQ) has been provided based on outline design estimates for Unit 1. This BoQ estimates over 16,000 tonnes of material and highlights key focus materials for the design including earthworks, concrete and the steel frame where material efficiency and circular design could have the most benefit.

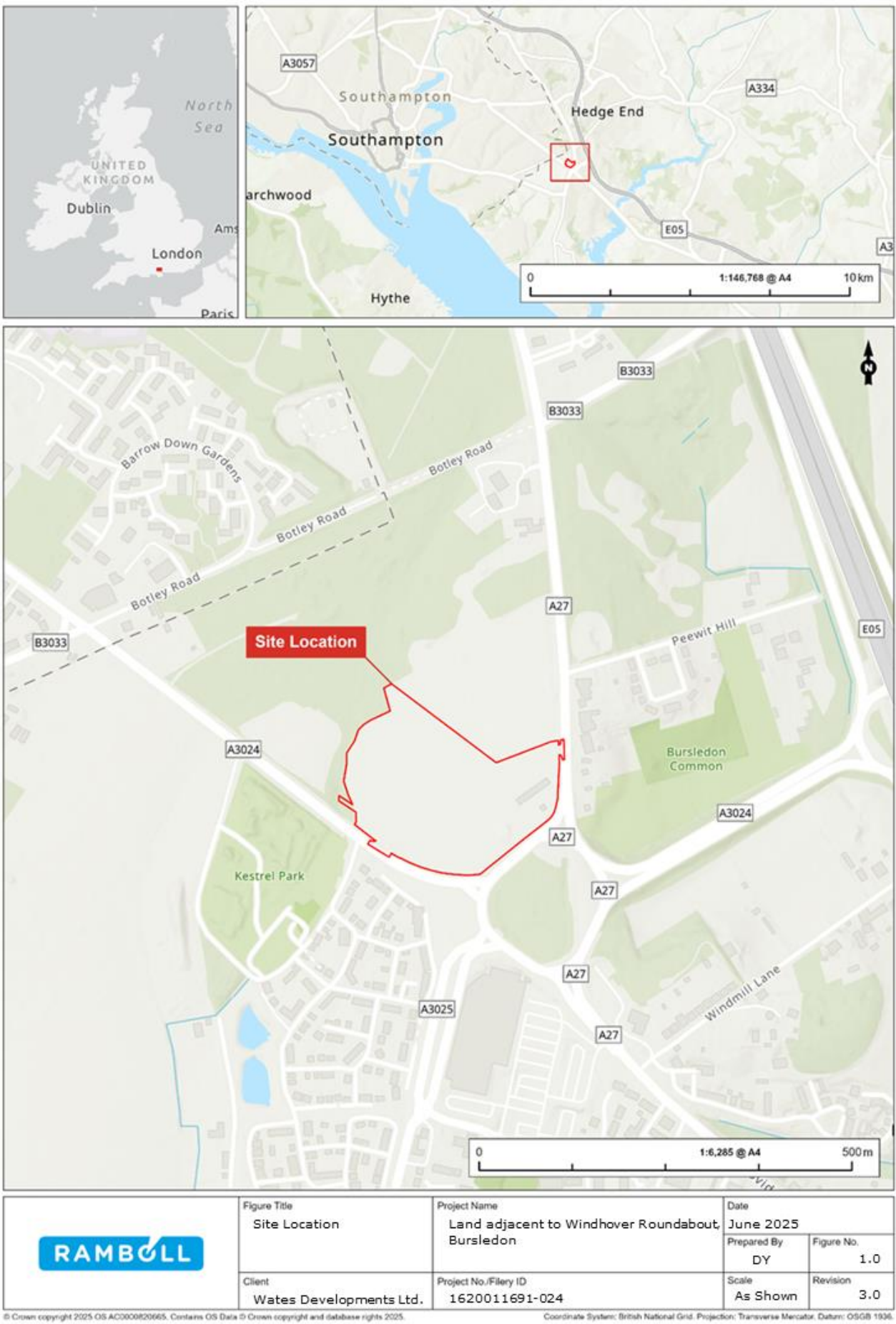


Figure 1: Site Location

1. Introduction

Background

Ramboll UK Limited (‘Ramboll’) has been appointed by Wates Developments Limited (the ‘Client’) to prepare a Circular Economy Statement (CES) with respect to the outline planning application for the development of the Land adjacent to Windhover Roundabout and between Bursledon Road (A3024) and West End Road (A27), Bursledon, Hants, SO31 8BN hereafter referred to as “the Site”. This report also supports the evidence provided for BREEAM Waste and Materials credits targeted on the project.

Objectives and Scope of Work

The project focuses on adaptability, resource efficiency, and minimising environmental impact, aligned with the principles of the circular economy.

As the application is seeking outline planning permission, the objective of this CES is to establish key circularity principles in the proposed design, identify relevant targets and ambitions and provide guidance that can be carried forward into the detailed design.

This CES should be read alongside the full suite of design and technical reports that have been prepared and submitted as part of the outline planning application.

Site Location

The Site is located at the Land adjacent to Windhover Roundabout, Bursledon. The Site is located with the administrative boundary of Eastleigh Borough Council, approximately 5.5km east of Southampton City Centre.

The Site is circa 4.63 ha (11.4 acres) and comprises predominantly undeveloped agricultural pasture land, but with potential for some Made Ground to be present in limited areas of the Site. The Site takes the form of two connected grassland fields with a patch of tall ruderals and a wet flush along its eastern edge. The Site also includes a small collection of agricultural-type buildings sited on an area of hard standing within its south eastern part. Topographically the Site falls to its south-west towards Bursledon Road, and rises north-east towards West End Road.

Project Development

The Proposed Development comprises an outline planning application (all matters reserved except for access) for employment development (Use Class B2/B8) of up to 18,580 square metres together with ancillary offices (Use Class E(g)(iii)) and other ancillary buildings, structures, parking, servicing and manoeuvring areas, landscaping and sustainable urban drainage features, following demolition of existing buildings.

The Proposed Site Layout is shown in Figure 1.

A breakdown of the Gross Internal Areas (GIAs) of Unit 1 and 2 provided by the applicant are shown in Table 1.

Table 1: Gross Internal Area (GIA) Breakdown

Space Uses	GIA
Unit 1	9,586 m ²
Unit 2	7,209 m ²
TOTAL GIA	16,795 m²



Figure 2: Land adjacent to Windhover Roundabout, Bursledon Illustrative Masterplan (credit: Terence O'Rourke – 276504-TOR-XX-ZZ-DR-A-P102_Illustrative Masterplan-D)

2. Methodology

Circular Economy Hierarchy and Core Principles

Circular Economy for Built Assets

The Circular Economy (CE) was developed as a response to our current linear model, a system that follows a ‘make-take-dispose’ approach and prioritises the use of virgin materials over those already in circulation. The Circular Economy, in contrast, aims to keep materials in use for longer, thereby retaining as much value from them as possible. Figure 3 below clearly illustrates this difference between the two models.

Material value retention lies at the heart of the circular economy. This retention is achieved through the reuse of resources, products, and parts, rather than relying on virgin materials. By rethinking how we construct buildings and manage their use, we aim to create a system that supports long life, optimal reuse, refurbishment, remanufacturing, and recycling of all materials associated with this development

By focusing on the design, production, consumption, and disposal of materials that are no longer needed, we can ensure smarter considerations for material value retention. To fully unlock this potential, sharing and providing access to unwanted materials can facilitate their reuse in new scenarios.

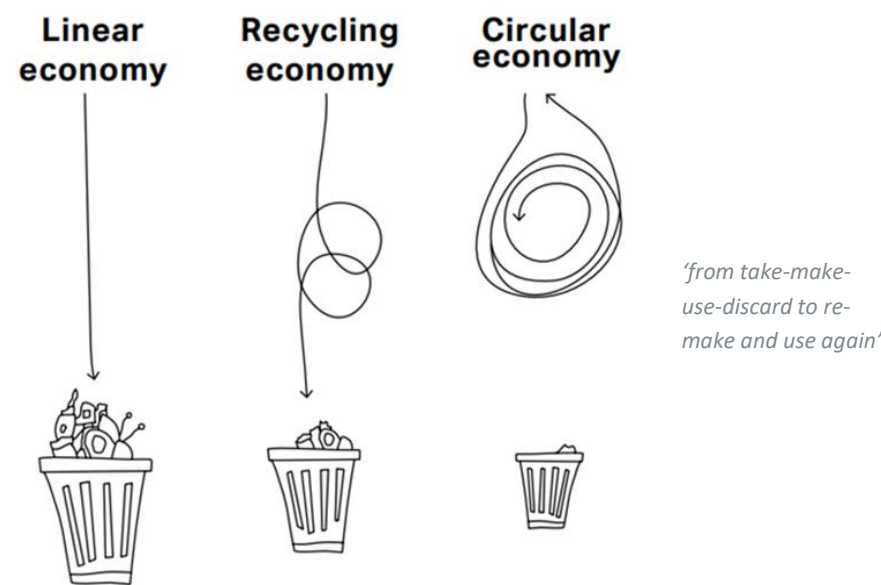


Figure 3: Circular Economy model, compared to the linear and recycling economies. Source: GLA ‘Circular Economy Statements’.

Circularity in buildings can be achieved in several ways. This includes flexible and adaptive design, which extends the lifespan of the structure, and the optimisation of materials to minimise the quantities used. While these concepts may vary depending on the project, the key is to design in a way that uses only the materials necessary, while ensuring future reuse is possible.

Circular Economy Hierarchy for Buildings

The hierarchy for building approaches maximises the use of existing materials, providing an overarching strategy for building development, with retention as the starting point. The typical stages in the Circular Economy Hierarchy, from most to the least preferable are:

- 1) **Retain:** When working with existing assets, explore retention, before any of the less circular alternatives to achieve financial and carbons savings.
- 2) **Reuse:** Prioritise local existing asset reuse before exporting them or sharing on second-hand marketplaces. Extract material full potential by keeping in circulation.
- 3) **Reduce:** Reduce the resource use and waste generated. Optimise space layout, system design and material quantities, design out waste.
- 4) **Recycle:** Recycle materials via upcycling before downcycling to increase element lifespan. Or use materials with recycled content. Incineration and landfill are the least preferable end-of-life routes.

Core Circular Economy Principles

A set of six CE principles have been developed, providing a framework to rethink how buildings are designed, constructed, maintained and deconstructed, encouraging innovation and promoting practices that align with sustainability goals.

The following principles serve as a guide and are a fundamental part of the building design process.

- 1) **Building in layers** – Ensuring that different parts of the building are accessible and can be maintained and replaced where necessary.
- 2) **Designing out waste** – Ensuring that waste reduction is planned in from project inception to completion.
- 3) **Designing for longevity** – Ensuring building elements are easy to maintain, repair, and upgrade, enabling them to remain functional and valuable for longer.
- 4) **Designing for adaptability or flexibility** - Designing spaces and systems that can easily be adapted to changing needs over time.
- 5) **Designing for disassembly** - Ensuring that building components are easy to separate and dismantle at the end of their life.
- 6) **Using systems, elements or materials that can be reused and recycled** - Choosing materials and systems that can be easily recovered and reused at the end of their lifecycle.

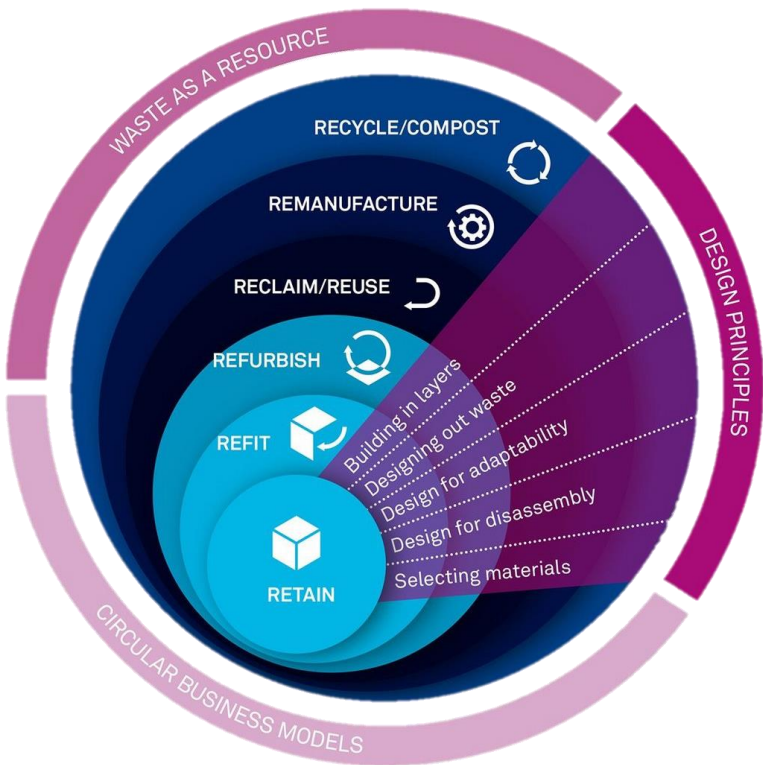


Figure 4: CE Hierarchy for building approaches, Source: Building Revolutions (2016), David Cheshire, RIBA Publishing.

2. Methodology

Building in Layers

Building in Layers Framework

When evaluating a building or development through the lens of Circular Economy principles, it is beneficial to look at each building component on its own life cycle. This approach, known as 'Building in Layers', involves planning and defining each layer based on its expected lifetime and role in the design. By adopting this method, the most suitable circular design strategies can be developed for each system individually.

The following diagram (Figure 5), provides a clear overview of the various lifespans associated with the building's different layers or systems.

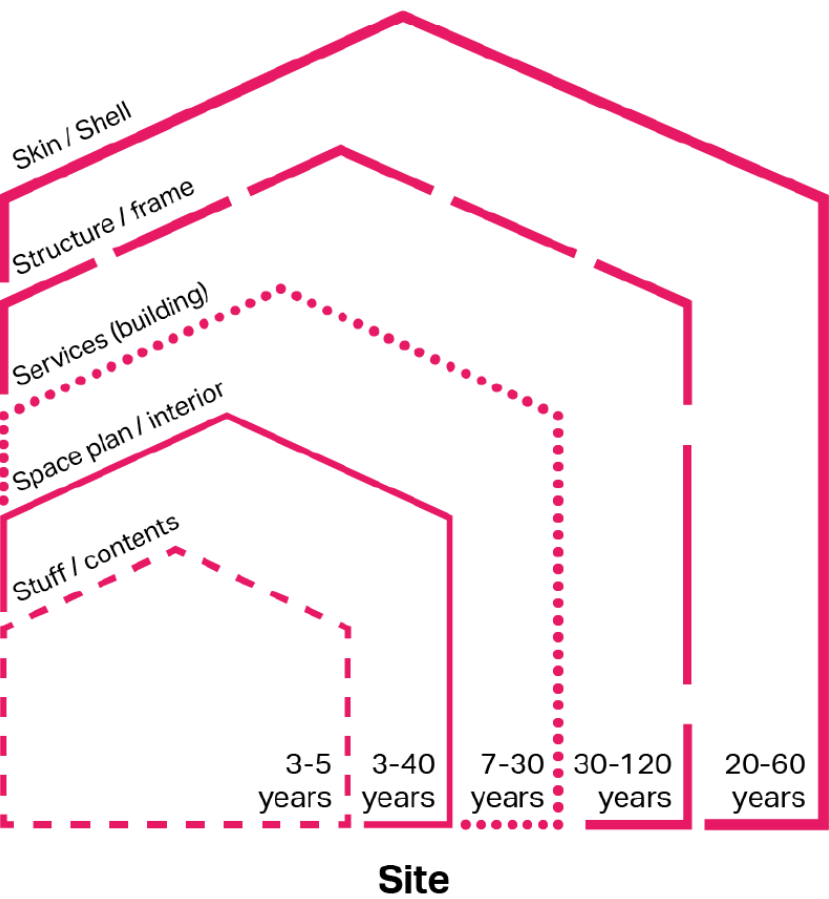


Figure 5: Building Layers and their indicative lifespans. Source: GLA 'Circular Economy Statements'.

These layers are further explained below:

- **Site**: Refers to the location of the building, including the surrounding environment, groundwork, and landscaping.
- **Skin**: The outer layer of the building that protects it from the elements such as rain, wind and extreme temperatures. It includes the outer walls, roof, and windows, and plays a crucial role in maintaining comfort and energy efficiency. Related to the façade and roof, with an indicative lifespan of 20-60 years.
- **Structure**: Encompasses the entire framework of the building, both above and below ground. This includes the foundations, frame, upper floors, core, and stairs. The structure is vital for the building's stability and durability, supporting all other building elements. The indicative lifespan ranges from 30 to 120 years.
- **Services**: Systems installed to ensure comfort, practicality, accessibility and safety, including heating, cooling, ventilation, electrics, and plumbing. The indicative lifespan ranging from 7 to 30 years.
- **Space**: Refers to the internal layout of the building, including walls, ceilings, and finishes. These elements can be changed or adapted without affecting the building's structure. The indicative lifespan ranges from 3 to 40 years.
- **Stuff**: Non-permanent, easily movable items inside the building, such as furniture and appliances. The indicative lifespan or these items ranges from 3 to 5 years.

3. Strategy for Existing Structures on Site

CE Approaches to Existing Structures/Buildings on Site

This Site currently has some existing agricultural buildings and an area of hardstanding to the south-east part of the site. These are planned for demolition with the structures not suitable for use or conversion in the scheme and conflict with the proposed access routes to the site.

Reuse and Recycling Potential

The overall condition of the existing buildings is poor, with limited potential for reuse. Key material that can be considered from the demolition include:

Steel Frame – This is likely in poor condition due to the age of the existing building and is not appropriate for direct reuse in the new construction. Testing of the sections’ integrity and strength would be required. It is recommended that that the steel elements are recycled.

Cladding – typically timber panels and corrugated steel sheets, both in poor condition. It is suggested these elements are recycled.

Hard standing – mainly concrete and gravel. These elements should be excavated and could be reused as backfill on site pending any cleaning or processing required and assessment of overall condition. Otherwise, reuse off site could be considered.

Potential reuse and value from existing materials should be further considered following the completion of pre-demolition audit at later stage.

Wst 01 Targets for Demolition

One BREEAM credit has been targeted in relation to *Wst 01 - Diversion of resources from landfill*. This credit is achieved by meeting targets for non-demolition, demolition and excavation related site waste.

The clearance of the existing site should meet the benchmark for One Credit as detailed in Table 2, with a stretch target of meeting the exemplary level credit.

Table 2: Demolition waste diversion from landfill benchmarks relating to BREEAM Wst 01

Space Uses	Type of Waste	Volume	Tonnage
One Credit	Demolition	80%	90%
Exemplary Level	Demolition	85%	95%

To maximise material recovery, the demolition contractor should follow best practices, including:

- Agreeing on reclamation and recycling targets as part of the demolition management plan.
- Recording actual materials and waste management methods during demolition to assess performance.
- Using separate containers per waste stream to ensure correct segregation.
- Training demolition operatives to properly recognise materials and handle them appropriately.

Local waste carriers have been identified to facilitate the transportation of materials to licensed waste facilities, ensuring proper recycling and material recovery.

The demolition process prioritises keeping materials in use at their highest value for as long as possible. To reduce the environmental impact of demolition, several strategies should be implemented:

- On-site crushing of inert materials, if feasible, to minimise transport emissions.
- Using local recycling facilities to reduce embodied carbon from transportation.
- Prioritising low-carbon transport options for material removal.
- Sourcing construction materials for the new development from sustainable, low-carbon suppliers.



Figure 6: Examples of existing buildings on site

4. BREEAM Credits and Approaches

Key credits relating to resilience and waste have been targeted, with high level approaches identified

BREEAM supporting evidence has been produced for Materials (Mat) and Waste (Wst) related credits. These credits focus on identifying strategies that will ensure the design is robust and durable against damage from use and environmental conditions and minimise waste materials through the whole building life span.

Evidence has been prepared in a range of templates for these credits and should be referred to directly to understand the full detail of suggested measures.

A summary of key actions are noted here.

Mat 05 - Designing for Durability and Resilience aims to minimise the need for repairs and replacements of exposed building and landscape elements by addressing operational wear and tear and environmental degradation. Unnecessary costs, material use, and waste generation can be avoided by identifying risk areas and specifying suitable protection measures.

Key Design Actions

- Specification of durable materials and appropriate finishes to mitigate degradation
- Measures to mitigate moisture ingress and damp such as DPC, cavity trains and weather resistant sealants
- Strategy for regular cleaning and maintenance of at risk materials such as brickwork and external hard landscaping

Mat 06 - Material Efficiency identifies design measures to reduce material use in building design without compromising structural stability, durability, or service life. Strategies such as reducing material use, promoting the reuse of existing materials, and encouraging materials with higher recycled content increase the overall material efficiency.

Key Design Actions

- Overall strategies for materiality and design have been identified
- Opportunities for material specification with increased recycled content such as in the steel frame, cladding panels or aggregates

- Building has been designed to meet a regular structural grid, increasing repeatability and minimising waste
- High level of off-site fabrication proposed (steel frame, pre-fabricated insulated cladding panels, standardised glazing module, standardised dock gates, prefabricated cycle stores).

Wst 01 – Construction Waste Management awards credits based on the level of waste produced through the construction period (note demolition related rates in section 3. Strategy for Existing Structures on Site).

Two credits are targeted for resource efficiency with a further credit targeted for diversion from landfill. These credits will be awarded post construction, however planning an implementation of design strategies (particularly Wst 06) can minimise waste and ensure credits are achieved.

Table 3: Construction waste resource efficiency to BREEAM Wst 01

Space Uses	Amount of waste generated per 100m2	
	m3	tonnes
One Credit	<13.3	<11.1
Two Credits	<7.5	<6.5
Three Credits	<3.4	<3.2
Exemplary Level	<1.6	<1.9

Table 4: Non- Demolition waste diversion from landfill benchmarks relating to BREEAM Wst 01

Space Uses	Type of Waste	Volume	Tonnage
One Credit	Non-Demolition	70%	80%
Exemplary Level	Non-Demolition	85%	90%

Wst 05 - Adaptation to Climate Change provides a mitigation strategy for adapting buildings to extreme weather changes due to climate change. Given the rising UK temperatures, sea levels, and increasingly heavy rainfall events, it's crucial to design new buildings with resilience to these changing conditions while avoiding over specification and resource use.

A range of hazards have been identified including flooring, storm and heatwaves. Strategies to mitigate these impacts focus on reducing the need for future adaptation, maintenance, and associated disruptions.

Key Design Actions

- Risk level has been estimated and evaluated against the proposed design.
- Mitigation strategies have been identified for each hazard, including setting design scenarios and implementing specific design measures such as reducing overhangs and specifying passive cooling measures.
- These strategies should be reviewed and considered further at later design stages.

Wst 06 - Design for Disassembly and Adaptability aims to avoid unnecessary material use, costs, and disruptions from future adaptation works due to changing functional demands. It focuses on maximising the ability to reclaim and reuse materials at final demolition in alignment with circular economy principles. By designing for disassembly, waste and costs are reduced.

Key Design Actions

- An open, regular structural grid has been specified, maximising potential for convertibility of the buildings.
- Disassembly has been prioritised by using a bolted steel frame with the primary façade system mechanically fixed to the structure. ‘Wet’ connections are avoided where possible.
- Consideration of a range of building sizes, unit sizes, access route and usage types, with the proposed design driven by achieving a flexible building scheme.

5. Bill of Materials

An early-stage bill of materials has been prepared based on the inputs to the WLCA study. This covers the main substructure, superstructure and envelope components. It should be noted that these quantities are estimated reflective of the current stage of the design and cover Unit 1 only. It is assumed construction will be similar and comparable for Unit 2.

Table 5 shows the total estimated quantities by building elements. Around 35% of the estimated materials are located in the substructure, with the significant floor slab and foundations required for a building of this this use. External works associated with the site accounts for over 50% of the materials, however it should be noted that much of this is low value soil and aggregate for sub-layers which could be sourced locally, with recycled materials.

Table 6 shows the total estimated quantities by material. Similar to above, Earth masses and concrete are the highest use materials with significant mass in the foundations and landscaping.

Significant quantities of the materials on site have high potential for recyclability, either downcycling or reuse as the same material. This scenario is reflective of an assumed position and highlights the value in end of life planning to ensure maximum return of materials.

End of Life Scenarios

An overall consideration of likely end of life scenarios for the key materials has been made which can be used to prioritise the implementation of circular principals at later design stages.

Below are the scenarios for key material groups. These scenarios are based on industry practice and Table 23, *Default BAU end-of-life scenarios, from the RICS PS WLCA Standard, 2nd edition*.

Significant quantities of concrete, aggregates and asphalt will exist on the scheme, all materials that are likely to be low value in recovery, most likely downcycled (i.e. crushed for use as aggregates). Steel, aluminium and brick elements potentially offer higher value with a high chance of direct re-use or recycling. Prioritising mechanical connections where possible and limiting sacrificial materials can ensure that as much of the high value material can be recovered as possible.

Table 5: High level bill of materials

Result category	Material quantity	Material intensity
	kg	kg/m2
1 Substructure	6,062,360	632
2.1 Superstructure: Frame	619,696	65
2.2 Superstructure: Upper Floors	143,189	15
2.3 Superstructure: Roof	145,228	15
2.4 Superstructure: Stairs and Ramps	527	0.1
2.5 Superstructure: External Walls	277,654	29
2.6 Superstructure: Windows and External doors	3,576	0.4
2.7 Superstructure: Internal Walls and Partitions	6,310	1
2.8 Superstructure: Internal doors	672	0
3 Finishes	200,376	21
4 Fittings, furnishings & equipments	Not quantified at this stage	
5 Services (MEP)		
6 Prefabricated buildings and building units	-	-
7 Work to existing building	-	-
8 External works	9,172,067	957
0 Unclassified / Other	-	-
Total	16,631,654	1,735

Table 6:: Potential End of Life scenarios for key material groups

Result category	Total	Disposal	Downcycling and use as energy	Recycling and reuse as material	Circular Materials	Waste Materials
	kg	%	%	%	kg	kg
Concrete	6,206,304	2.5	97.5	-	6,051,146	155,158
Metal	1,083,619	-	-	100.0	1,083,619	-
Bricks and ceramics	158,895	2.5	97.5	-	154,923	3,972
Gypsum-based	51,398	83.0	-	17.0	8,738	42,660
Insulation	5,362	99.0	-	1.0	54	5,308
Earth masses and asphalt	8,727,573	2.5	-	97.5	8,509,384	218,189
Other materials	6,594	-	37.2	62.9	6,594	-

5. Conclusions

Circular Economy Strategy

Summary

The Circular Economy Statement identifies some key early design decisions that have been taken to maximise the circular potential of the development, improving flexibility, adaptability, robustness and material efficiency. These have been reported and evidenced as part of the BREEAM Materials and Waste credits.

Circular Economy Principles

Core principals have been identified that will benefit the next stages of the project's design.

- 1) **Building in layers** – Ensuring that different parts of the building are accessible and can be maintained and replaced where necessary.
- 2) **Designing out waste** – Ensuring that waste reduction is planned in from project inception to completion.
- 3) **Designing for longevity** – Ensuring building elements are easy to maintain, repair, and upgrade, enabling them to remain functional and valuable for longer.
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- 6) **Using systems, elements or materials that can be reused and recycled** - Choosing materials and systems that can be easily recovered and reused at the end of their lifecycle.

Bill of Materials

A high-level bill of materials has been prepared for the structure, envelope and hard landscaping elements of the developed. This shows a significant quantity of concretes, aggregates and earth materials in the sub-structure and hard landscaping elements of the building. There is also several high value items that have been identified, such as the steel frame.

Next Steps

- Key reports should be completed at following stages such as the pre-demolition audit, site waste management plan and operational management plan. These documents are key to ensuring that material potential is maximised and landfilled waste is limited.
- Circular strategies identified in the early stages of design should be further developed into the design. Review of material use, specification and construction techniques can all improve the circular potential.
- BREEAM evidence should be revisited at detailed design to review progress against criteria and maximise overall BREEAM rating.

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