BURO HAPPOLD

Sister Plot H

Circular Economy Statement

SISPH-BHE-ZZ-ZZ-RP-SU-00001

066862

17 December 2025

Revision P04

Copyright © 1976 - 2026 Buro Happold. All rights reserved

Revision	Description	Issued by	Date	Checked
P01	Draft Circular Economy Statement	IA	24/10/2025	AT
P02	Issue for Review	IA	03/12/2025	AT
P03	Final Issue for Planning	IA	17/12/2025	AT
P04	Issue for Planning – GGBS guidance R1	IA	15/01/2026	AT

Report Disclaimer

This Report was prepared by Buro Happold Limited ("BH") in accordance with, and remains subject to, the terms of BH's appointment for the benefit of 'The Applicant' in relation to Planning application. BH's responsibility shall be limited to the purpose for which this Report was prepared, with BH assuming no liability for any reliance placed on this Report by any third party.

Notwithstanding the foregoing, the content of this Report shall remain subject to the following:

1. This Report is based upon the information and knowledge available to BH at the time of writing and, unless otherwise expressly stipulated herein, BH has not sought to verify or validate any data received by BH and/or which may underpin this Report.
2. BH assumes no ownership nor liability in respect of any third-party design, workmanship, and/or deliverables, and shall not be held responsible for the consequences of any negligence, error, or omission in respect of the same.
3. BH does not guarantee any particular outcome, nor does BH provide any warranty in respect of any third-party services, equipment requirements and/or software and is not responsible for the outcome or use of the same; regardless of whether the content of this Report is followed.
4. This Report shall not be construed as investment or financial advice.

BH reserves the right on notice to withdraw this Report and all associated intellectual property rights, licences or otherwise granted pursuant to BH's appointment should any payments which fall due not be paid in full. Any reliance placed upon the Report in such circumstances shall be deemed null and void.

author	**Ileana Acevedo**
date	**17th December 2025**
approved	**Alistair Thomas**
signature	[redacted]
date	**17th December 2025**

Copyright © 1976 - 2026 Buro Happold. All rights reserved

.

Copyright © 1976 - 2026 Buro Happold. All rights reserved

Contents

1 Executive Summary 7

2 Introduction 8

2.1 Applicable policies 8

2.2 Guidance documents 8

2.3 Existing Site 9

3 Circular economy key objectives 10

4 Circular economy principles 11

4.1 Building in layers: 11

4.2 Design out Waste 11

4.3 Design for Longevity 11

4.4 Design for adaptability or flexibility 12

4.5 Design for disassembly 12

4.6 Material Efficiency 13

4.6.1 Resource Efficiency 15

4.7 Using systems, elements or materials that can be reused and recycled. 15

5 Design out Waste Approach 16

5.1 Demolition Environmental Management Plan 17

5.2 Demolition waste 18

5.2.1 Reuse of existing materials 18

5.2.2 Recycled aggregates 18

5.2.3 Secondary materials marketplaces and charitable outlets 19

5.3 Construction waste 20

5.4 Operational waste 21

6 Material Resource Strategies 22

6.1 Material Specification 22

6.2 Sustainable Procurement 23

6.3 Environmental Product Declarations 23

Copyright © 1976 - 2026 Buro Happold. All rights reserved

Appendix A BREEAM Waste 03 Operational Waste **24**

Appendix B BREEAM Waste 06 Design for Disassembly and Adaptability **25**

Appendix C Circular Economy Workshop **26**

Copyright © 1976 - 2026 Buro Happold. All rights reserved

Glossary

Term	Definition
CE	Circular Economy
EoL	End of Life
DfD	Design for Disassembly
LCA	Life-cycle Carbon Assessment
MCC	Manchester City Council
PfE	Places for Everyone
GLA	Greater London Authority
PBSA	Purpose Build Student Accommodation
DEMP	Demolition Environmental Management Plan
EPDs	Environmental Product Declarations

Copyright © 1976 - 2026 Buro Happold. All rights reserved

1 Executive Summary

This Circular Economy Statement (CES) is submitted in support of the full planning application for the Sister – Plot H development, brought forward by the applicant team comprising RGRE Ltd, ID Manchester Ltd, and The University of Manchester, 'The Applicant.'

The site in Manchester City Centre is bounded by Charles Street (south), the Manchester South Junction and Altrincham Railway Viaduct and Granby Row (north), Sackville Street (east), and Princess Street (west). The site currently comprises a vacant multi-storey car park (closed October 2024) and three vacant retail units (last occupied June 2025). The car park and retail units are no longer fit for purpose and are subject to a planning application (submitted August 2025) for demolition.

This Statement seeks to demonstrate how Manchester City Council's (MCC) circular economy policies within the Manchester's Core Strategy Development Plan Document (2012), Places for Everyone (2024); and the Addendum to the Manchester Core Strategy (2024), have informed the Proposed Development in embedding circular economy in the design. This Statement should be read in conjunction with Environmental Standards Statement, Energy Strategy and the project BREEAM pre-assessment, with supporting relevant technical reports submitted as part of the planning application.

The topics covered in this report include circular economy principles, waste management, and material resource strategies.

The current proposal aims to minimise non-hazardous demolition, excavation, construction, and operational waste sent to landfill. Additionally, the design proposal will consider designing out waste through material resource efficiency, and review material specifications with recycled content, with the potential of recycled aggregates, during the procurement process.

Copyright © 1976 - 2026 Buro Happold. All rights reserved

2 Introduction

The current linear "take-make-use-discard" economic model is unsustainable and increasingly problematic in the UK. This system depletes natural resources, turning them into waste without replenishment. A shift to a circular economy is vital, requiring collective action to reduce resource exploitation, limit reliance on landfills and incinerators, and preserve the intrinsic value of existing materials.

2.1 Applicable policies

- Manchester's Local Development Framework – Core Strategy:
  - Policy EC2 – Existing Employment Space
  - Policy CC6 – City Centre High Density Development
  - Policy EN 4 – Reducing CO_2 Emissions by Enabling Low and Zero Carbon Development
  - Policy EN 19 – Waste - Submit a Waste Management Plan for Construction and Demolition Waste
  - Policy EN 20 – Minerals - Promote the use of secondary/recycled aggregates, wherever possible as an alternative to primary extraction.
- Places for Everyone (PfE) Joint Development Plan (2024):
  - JP-S1: Sustainable Development
  - JP-S6: Resource Efficiency
  - JP-P1: Sustainable Places.

2.2 Guidance documents

The Greater Manchester Combined Authority (GMCA) Net Zero Design Guidance supports a circular economy framework which ensures materials can be re-used and diverted from landfill or incinerations; building on material embodied carbon principles of re-use, recover, and recycle. The document provides guidance on material selection hierarchy, including the importance of natural materials, and specification of local sourced materials and considerations of Environmental Product Declarations (EPD).

The Greater London Authority (GLA) guidance, a recognised methodology that enables comparison with similar projects across the UK, has been referenced across the document in support of the applicable policies, including design-out-waste, and building-in-layers design principles.

Copyright © 1976 - 2026 Buro Happold. All rights reserved

2.3 Existing Site

The site in Manchester City Centre is bounded by Charles Street (south), the Manchester South Junction and Altrincham Railway Viaduct and Granby Row (north), Sackville Street (east), and Princess Street (west). The site currently comprises a vacant multi-storey car park (closed October 2024) and three vacant retail units (last occupied June 2025). The car park and retail units are no longer fit for purpose and are subject to a planning application (submitted August 2025) for demolition.

Although not within a conservation area, the site is located adjacent to the boundary of the Whitworth Street Conservation Area and there are listed buildings immediately to the north of the site, and within its vicinity, including the Grade II Listed Manchester South Junction & Altrincham Viaduct, Orient House, and Granby House.

The site is split across Flood Zone 1 (low probability of flooding) to the east and Flood Zone 2 (medium probability of flooding) to the west. The existing car park structure exhibits evidence of flooding in the basement and ground floor areas.

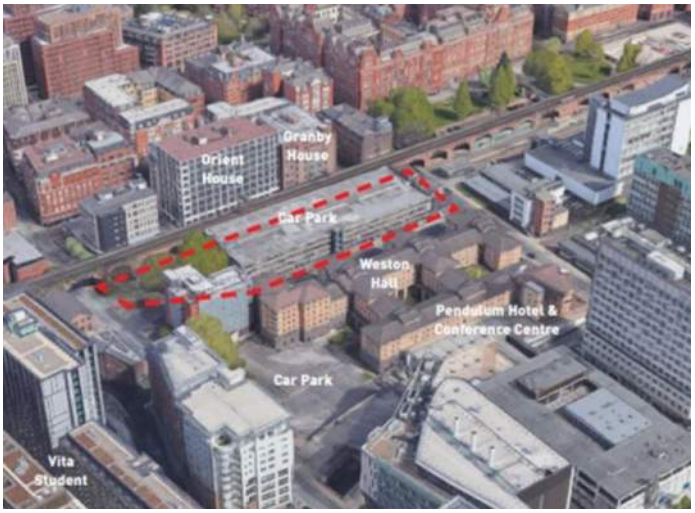


Figure 2—1 Existing Site Boundary



Figure 2—2 Existing Car Park block to be demolished, (Subject to separate planning application submitted August 2025)

Copyright © 1976 - 2026 Buro Happold. All rights reserved

3 Circular economy key objectives

This proposal will support Manchester's Circular Economy ambitions by prioritising waste minimisation during demolition, construction, and operation whilst also accounting for resource efficiency by using sustainable design and construction techniques which reduce greenhouse gas emissions.

To achieve this, the design team will adhere to the Greater London Authority (GLA) guidance, a recognised methodology that enables comparison with similar projects across London and the rest of the UK. The GLA guidance on the circular economy is based on six key principles:

1. **Building in layers** - to allow easy disassembly of materials, enabling replacement with minimum disruption and waste.
2. **Design out waste** - at every stage of the building life cycle.
3. **Design for longevity** - supporting a good maintenance regime that minimises replacement.
4. **Design for adaptability and flexibility** - supporting new uses, future practices, and adaptation to climate change without the need of a full re-development or deep retrofit.
5. **Design for disassembly** - to support flexibility and adaptability of the spaces while enabling future material reuse.
6. **Using systems, elements or materials that can be reused and recycled** - supporting the local plan ambition for low carbon materials.

This Circular Economy statement outlines the Proposed Development's considerations in support of the local Council's transition towards a circular economy. The proposed scheme will consider the full life-cycle of the building materials, with ambitions on adaptability, flexibility, and long-term value retention, with an aim to use resources responsibly, minimise pollution, enhance structural longevity, reduce waste during construction and operation, and incorporate 'design for disassembly' (DfD) principles into its end-of-life strategy, wherever practical and feasible.

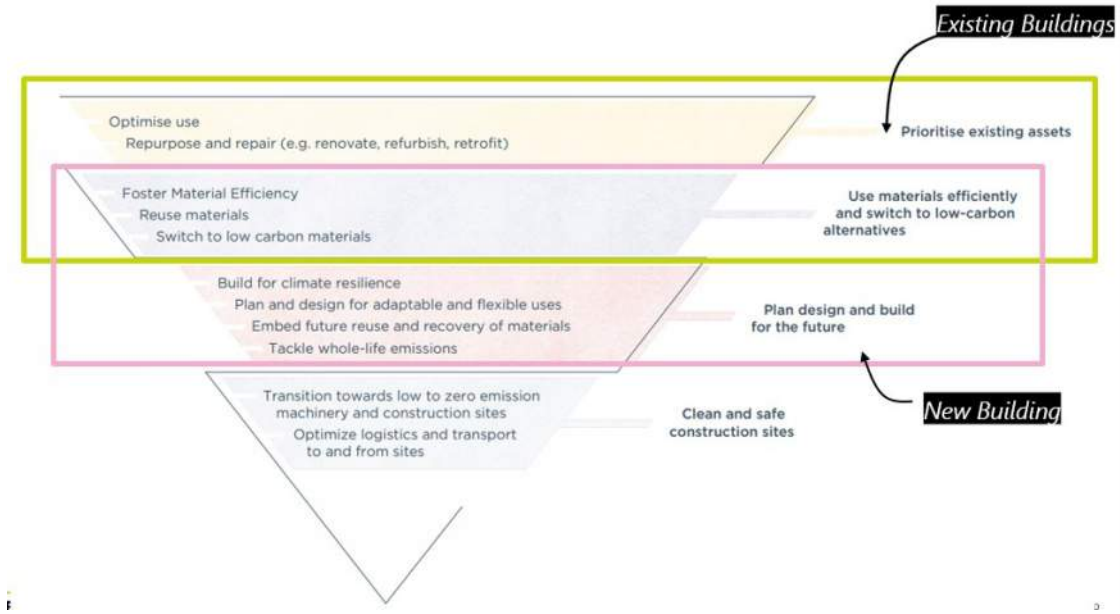


Figure 3—1 Circular Design Hierarchy

Copyright © 1976 - 2026 Buro Happold. All rights reserved

4 Circular economy principles

The following section provides a circular economy approach and narrative of the design process followed for the Site for the different building layers as defined by the GLA Circular economy guidance.

As part of the design development process, a circular economy workshop was held on the 17th of November 2025 to ensure the project team's understanding of circular economy principles and to explore strategic approaches for the project. The following parties were present at the workshop:

- Ileana Acevedo – Circular Economy Strategy, Buro Happold
- Lee Bowen – Architectural Assistant, Hodder + Partners
- Eddie Pugh – Landscape Architect, Layer Studio
- Cath Lester – Landscape Architect, Layer Studio
- Chloe Quinn – Structural Engineer

The objective of the meeting was to define the project's circular economy approach, identify opportunities for reuse, repair, recycling, and design for disassembly.

Please refer to Appendix C Circular Economy Workshop for presentation slide deck and meeting minutes.

4.1 Building in layers:

The project team will prioritise accessibility, maintenance, and replaceability of building components throughout the design process. During the detailed design stage, the team will develop strategies to enable the disassembly and recoverability of materials, ensuring alignment with this principle.

Building services design should allow for easy replacement of major plant systems throughout the building's lifespan. For concealed elements, removable panels on floors and walls should be prioritised to provide access to frequently serviced equipment without impacting the structure.

Modular and demountable building services equipment should be emphasised, enabling straightforward, non-destructive replacement. Self-finished materials and dry connections are to be prioritised, minimising the use of adhesives, sealants, and silicon-based solutions. This approach supports layer independence and enhances the building's adaptability and sustainability.

4.2 Design out Waste

This design principle has been identified as MCC's key objective for the local circular economy targets along with PfE's ambitions for supporting a circular and zero-waste economy. This statement expands on the subject Design out Waste Approach in Section 5.

4.3 Design for Longevity

Sister Plot H is to be thoughtfully designed to ensure longevity and ease of maintenance for all components, in line with the PfE's ambitions for durable developments. This is achieved through durable design strategies aimed at minimising replacements. Key measures include:

Copyright © 1976 - 2026 Buro Happold. All rights reserved

- Specifying prefabricated façade panelling in alignment with the project site's architectural language, ensuring seamless integration with its surroundings while reducing façade maintenance requirements by ensuring easy access and replacement of elements to support long-term upkeep.
- Incorporating sustainable drainage systems which reduce maintenance risks and support a durable and sustainable surface water network. This comprehensive approach underscores the project's commitment to resilience, sustainability, and long-term functionality.
- The specification and procurement of hard-wearing materials which will be prioritised at entrances to ensure durability, complemented by climate-resilient landscaping. Key pavements and high-traffic areas will also feature robust materials to withstand frequent use.

4.4 Design for adaptability or flexibility

To address flooding risks, surface water runoff generated within the site will be directed and managed in accordance with a detailed drainage strategy which will incorporate Sustainable Drainage Systems (SuDS) where feasible, ensuring that runoff is attenuated, treated, and discharged at rates which prevent an increase in flood risk. *Refer to Roscoe's Plot H, Charles Street, Manchester, Flood Risk Assessment document, 25415-00-00-DR-C-09000.*

The new structure has been designed to adapt to potential future changes of use, occupancy densities and climate change, in line with PfE's ambitions for an adaptable development, by thorough considerations such as changes to wind, rainfall, drought, and flooding, in the structural and civil engineering design due to climate change.

To avoid over-dimensioning and supported by The Applicant's input about the unlikelihood of the area changing to different uses, higher load capacities for alternative uses were not considered, focusing instead on a lean design approach, with adaptability strongly pursued through structural grids, flexible partitions, oversized plan and service capacity planning.

The design team has undertaken a RIBA Stage 2 Functional Adaptability Strategy with consideration to the following to the following measures:

- Large spanning grid with column positions allowing for future reconfiguration of internal layouts.
- Regular gird facades which support flexible internal wall positioning without restricting layouts.
- Taller ground floor heights enable potential mezzanine insertion.
- Additional basement space reserved for future plant requirements.
- Open plan areas with regular grid minimises obstructions, allowing conversion to cellular layouts.
- Flexible and Lightweight partitions which are easily deconstructed for reconfiguration for change of use.
- Suspended ceilings
- Cable/duct sizing for additional future capacity.

Refer to **Appendix B BREEAM Waste 06 Design for Disassembly and Adaptability**

4.5 Design for disassembly

The project team is to prioritise designing building components for disassembly in line with BREEAM New Construction V6 Waste 06 credit guidance. Included in the design team's Functional Adaptability Strategy are measures which enable component removal, replacement, and reuse; ensure layer independence and facilitating the future reuse of installed materials. These measures include:

Copyright © 1976 - 2026 Buro Happold. All rights reserved

- Building envelope to consist of removable precast panels and glazing systems designed for future replacement.
    - Façade panels and fire stopping are to be mechanically fixed to superstructure with minimal adhesives intended for primary fixings.
    - Glazing to be specified with internal beading to facilitate safe internal access for replacement and disassembly. This is to be confirmed at technical design stage.
- Spatial provisions have been made at early design stage for independent column linings, which replace traditional dot-and-dab construction. Independent column lining is durable and provides enhanced acoustical value, while facilitating flexibility for future adaptability when compared to dot and dab technique which is harder to modify.
- Bolted joints preferred over welded to enable easier disassembly.
- Access panels incorporated in risers and walls for plant/service replacement which enable removal without intrusive works.
- The PV framing system on the roof has been designed to enable future disassembly.

A more detailed disassembly guide will be developed during the detailed design stages in alignment with BREEAM requirements. It will focus on key elements that may require replacement during the multiple buildings' lifespan, such as façades and internal partitions, excluding load-bearing walls.

The guide's objective is to equip future building owners and tenants with the knowledge to efficiently deconstruct elements of the buildings at the end of its life, maximising material reuse and recycling. Coordination of these considerations is already underway as part of the operations and maintenance manual requirements.

This proactive approach reflects a commitment to sustainability and resource efficiency, supporting the long-term environmental goals of the project.

Refer to **Appendix B BREEAM Waste 06 Design for Disassembly and Adaptability**

4.6 Material Efficiency

A material efficiency strategy has been developed by the design team which considers the opportunities and methods to optimise the use of materials throughout the whole life cycle of the building. The design team has identified opportunities to reduce and or optimise materials use through design, specification, and construction techniques.

Table 4—1 summarises design team responses which highlight the ways in which material optimisation has been incorporated within the design at concept stage. The development and implementation of the material efficiency is to be reevaluated throughout the design process.

Copyright © 1976 - 2026 Buro Happold. All rights reserved

#	Suitable Material Efficiency Design Measures	Architectural Considerations (Hodder + Partners)	Structural Considerations (Roscoe)
1	Increasing the utilisation factor of structural members		All structural elements are designed efficiently to perform in accordance with the requirements of the Building Regulations and serviceability requirements of the end-user. Roscoe do not work to limit utilisation factors within our design (which other engineers may do to allow for some redundancy/correcting of errors at a later date).
2	Making use of recycled or reclaimed materials	Product suppliers may be able to confirm in due course.	
3	Designing for deconstruction and material reuse	Robust material choices have been made for the facade with the intention of prolonging the life-span of the building	
4	Using prefabricated elements where appropriate to reduce material waste	Facade system to be pre-cast concrete panels with integrated window systems to reduce on-site waste for window systems and cladding.	
5	Avoiding over-specification of predicted loads		The structure is designed for the permanent and variable loads as set out by the Eurocodes and the specific material self-weight of the structure and cladding specified
6	Making use of bespoke structural elements where this will reduce overall material use		Use of bespoke structural elements can be investigated subject to budget and programme requirements
7	'Rationalisation' of structural elements		Rationalisation of structural elements will form part of the design, however there will be a focus on ensuring efficiency from a design and construction perspective (rationalisation could cause over-design/use of materials which is sought to be removed in item 1).
8	Optimising the foundation design for embodied environmental impact		Foundations will be designed efficiently to transfer loads to the adequate founding strata

Table 4—1 Material Efficiency Strategy

Copyright © 1976 - 2026 Buro Happold. All rights reserved

4.6.1 Resource Efficiency

Landscape architectural design incorporates the retention of mature trees at the northwest corner of the project site. This design feature supports circular economy principles by preserving natural capital and avoiding the embodied carbon associated to the removal, disposal, and replacement of the existing asset. Additionally, the retention of the existing trees provides immediate ecological and wellbeing benefits to the local community.



Figure 4—1 Landscape Design, Concept General Arrangement, Image provided by Layer Studio.

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

The design team will prioritise specifications for materials that are reused or contain high recycled content wherever feasible or valuable.

This strategy aims to reduce the Site's embodied carbon in alignment with MCC's ambitions for a low-carbon development.

This statement expands on the subject in Material Resource Strategies in Chapter 6.

Copyright © 1976 - 2026 Buro Happold. All rights reserved

5 Design out Waste Approach

The materials circular economy strategic approach targets waste reduction in line with MCC's local plan ambitions. The design proposal envisions a concrete structural frame and precast façade with durability strategies at their core to minimise waste during the lifetime of the building, and their potential reuse at project de-commissioning for a future development. The proposal targets the waste hierarchy through:

- **Prevention**:
    - Design for durability strategies.
    - Regular design reviews in all design stages to avoid over dimensioning, minimising the need of materials and construction waste.
    - Target off-site prefabricated elements to minimise construction waste.
    - Adopt design for disassembly and adaptability strategies on elements that are expected to require of replacement due to use patterns and improved performance along the lifespan of the project. This strategy aims to minimise future construction and demolition waste.
- **Reuse**:
    - Integration of reuse materials where technically, and financially feasible in an efficient manner to reduce the need of new materials and reduce demolition waste.
    - Target reuse of excavation waste in the landscape if feasible to reduce excavation and construction waste along with minimising new materials brought to the Site.
- **Recycling**: careful segregation to minimise contamination of materials with potential for recycling.
- **Recovery**: those contaminated materials that cannot be recycled but are combustible will be sent to an incineration plant with energy recovery dedicated to district heating.
- **Disposal**: materials sent to landfill will be minimised. The predicted waste quantified in the Demolition Environmental Management Plan (DEMP) estimates the possibility to divert from landfill 99% of estimated weight of demolition and excavation waste streams. This will be reviewed and confirmed by the relevant contractors during the design stages.

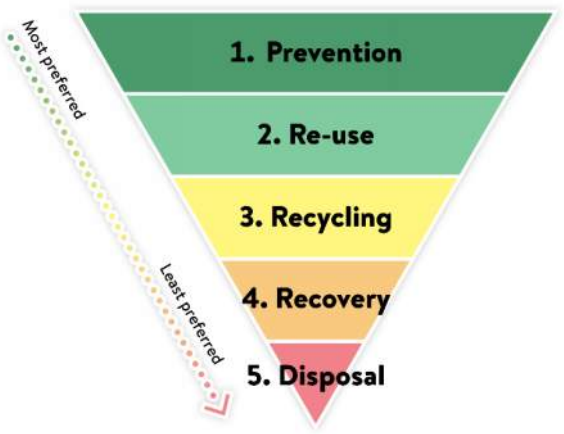


Figure 5—1 Circular Design Hierarchy

Copyright © 1976 - 2026 Buro Happold. All rights reserved

5.1 Demolition Environmental Management Plan

This planning application does not include demolition, which is currently subject to a separate planning application (143741/FO/2025) and will be addressed under a separate consent process.

While demolition is outside the scope of this submission, reference is made here to acknowledge its role in the overall development lifecycle and involvement in the project's circularity narrative.

A Demolition Environmental Management Plan (DEMP) was undertaken by Elford Demolition and Remediation Limited, with scope intended for the demolition of the multi-storey car park on site. Whilst the DEMP does focus on environmental impact and ensures regulatory compliance, the document does not serve as a pre-demolition audit and therefore will not comply with BREEAM Waste 01 requirements, if targeted.

The DEMP has predicted the following waste classifications and quantities produced during the demolition.

Table 5—1 Predicted waste classifications and quantities (Source: DEMP)

Material group	Est Weight (tonnes)	Opportunities for Reuse/Recycling	% Target Reuse/Recycling
Bricks	500	Recycling	100
Concrete	3,000	Recycling	100
Insulation	50	Recycling	100
Packaging	5	Recycling	100
Timber	50	Recycling	100
Electrical and electronic equipment	1	Recycling	100
Oils	1	Recycling	100
Asphalt and Tar	100	Recycling	100
Tiles and ceramics	5	Recycling	100
Inert	0		
Metals	50	Recycling	100
Gypsum	40	Recycling	100
Binders	0		
Plastics	20	Recycling	100
Soils	0		
Liquids	0		
Hazardous	0		
Floor Coverings (soft)	3	Recycling	100
Architectural features	0		
Mixed or other	0		

Some of the material groups listed above are challenging to reuse or recycle due to the possibility of containing hazardous waste and are either bonded or composite materials which have resistance to separation and or difficult to clean. Examples are highlighted in the table above and will require more detailed investigation prior to demolition.

Copyright © 1976 - 2026 Buro Happold. All rights reserved

5.2 Demolition waste

A careful waste management strategy will be developed with the soft-strip out and demolition contractors and potential manufacturers. This approach aims to ensure proper material segregation, minimise contamination, and support recycling initiatives that preserve the value of existing materials. Partnerships with manufacturers specialising in repurposing demolition materials will be explored during the next design stages as more information becomes available.

The project will aim to divert 90% by tonnage of demolition waste by tonnage from landfill, emphasising sustainability and resource efficiency, in alignment with BREEAM Construction Waste Management requirements.

A pre-demolition audit is recommended to assess the existing multistorey carpark's material and components, identify waste figures, and assist in setting reuse and/or recycling targets where appropriate. Identification of local reprocessors, recyclers, and waste contractors in the Northwest within the scope of the report can assist in landfill diversion and enable practical pathways for material recovery.

As part of the project's circular strategy, the design team is recommended to incorporate a clear 'reuse and recycle' material strategy, subject to the quality of materials being removed and assessed, and availability based on the outcomes of required surveys and feasibility studies in collaboration with the appropriate contractors.

Please note, this planning application does not include demolition, which is currently subject to a separate planning application (143741/FO/2025) and will be addressed under a separate consent process.

5.2.1 Reuse of existing materials

Excavated material (e.g. soil and building aggregates) from demolition works will be utilised, where practical, for beneficial uses, such as landscaping, pending chemical testing of the existing substrates, or within the public realm. The use of new coarse aggregates for infills, et cetera, will be minimised though careful cut and fill calculations.

The design team has assessed the potential to reuse the existing concrete structure through a PRECS (Piecewise Reuse of Extracted Concrete Structures) system. Following this review, the structural consultant has concluded that reuse is not feasible, primarily due to the requirement for structural continuity in the proposed design and the additional load demands introduced by the new basement.

5.2.2 Recycled aggregates

The DEMP reveals that a sizeable proportion of the waste generated during the demolition process will consist of concrete and clay bricks, estimated at 78% and 13% respectively of the total demolition waste by mass.

Recycled aggregate will be prioritised for ground built-up area as part of the landscape design strategy; reducing embodied carbon and supporting the project's circular economy principles.

While reuse options for these materials are being investigated, some of the waste is expected to be downcycled.

To address this, potential collaborations with local concrete and façade manufacturers will be explored to support the Council's objectives of promoting recycled aggregates as an alternative to primary extraction. The feasibility of implementing this strategy, including considerations around storage, processing, and transfer sites, will be further evaluated during the upcoming design stages.

Copyright © 1976 - 2026 Buro Happold. All rights reserved

This approach seeks to align with sustainability goals while optimising waste management practices to reduce the environmental impact of demolition activities.

5.2.3 Secondary materials marketplaces and charitable outlets

Material reuse exchange platforms and charities offer a practical a sustainable way to reduce waste. Early engagement with local organisations and coordination prior to project demolition has the potential to reduce disposal costs and contribute to social value of local community. Renew Hub, in Greater Manchester, is the UK's largest reuse facility with proceeds supporting the Greater Manchester Mayor's Charity and community funds.

Copyright © 1976 - 2026 Buro Happold. All rights reserved

5.3 Construction waste

Construction waste will be minimised through a lean design strategy that reduces material demand and avoids oversizing wherever feasible. The design team will refine designs at each stage to ensure efficient material use while maintaining adaptability and flexibility.

As the design evolves, strategies such as standardisation, preconstruction methods, and building in layers will be explored. Prefabrication is currently considered for the façade elements. However, further options will be explored in collaboration with the main contractor and relevant subcontractors.

A Whole Life-cycle Carbon Assessment (WLCA) has been undertaken and submitted as part of the project planning application.

Please refer to SISPH-BHE-ZZ-ZZ-RP-SU-00002.

The WLCA will be conducted throughout the design stages to evaluate the carbon impact of the proposed design. An optioneering study of structural frame typologies informed efficient construction decisions aligned with local plans for Low and Zero Carbon developments. Further details are available in the Environmental Standards Statement submitted with this planning application.

To manage waste efficiently throughout the building's lifecycle, the building contractors will develop a Resource Management Plan (RMP). This plan will outline best practices to minimise waste and divert materials from landfill, promoting sustainability and environmental responsibility.

The Proposed Development is targeting a construction waste resource efficiency benchmark of ≤6.5 tons of waste generated per 100m^2 (GIA), in line with BREEAM requirements. The RMP will provide detail on the following:

- Targets for resource efficiency.
- Commitments to minimise waste.
- Procedures to estimate, monitor, measures, and report waste.
- Procedures to sort, reuse and recycle construction waste.

On-site waste management will adhere to the established waste hierarchy, aligning with local policies. Where feasible, off-site prefabricated elements will be prioritised to minimise waste generation. Additionally, proper material storage will be implemented to prevent damage and deterioration that could result in unnecessary waste.

The Proposed Development aims to divert 80% (per tonnage) of non-demolition waste from landfill, demonstrating a commitment to sustainable and efficient resource management.

Copyright © 1976 - 2026 Buro Happold. All rights reserved

5.4 Operational waste

An Operational Waste Management Strategy by Civic Engineers ensures compliance with local and national policies, estimating waste streams and quantities for efficient storage and high recycling rates. Key proposals include waste segregation at source and systematic collection processes.

To maximise recycling of operational waste, the proposed development has dedicated storage spaces and facilities within the basement of the building. On collection day, bins will be moved in the bin lift from basement up to ground floor by building management. General waste, pulpable recycling, dry recycling and food waste bin stores will be provided.

Commercial/retail units on the ground floor will contain waste stores within their respective unit demise and will be subject to future tenant requirements and configurations.

Please refer to the Operational Waste Strategy.



Figure 5—2 Basement Level Dedicated Refuse Storage, plan provided by Hodder+Partners

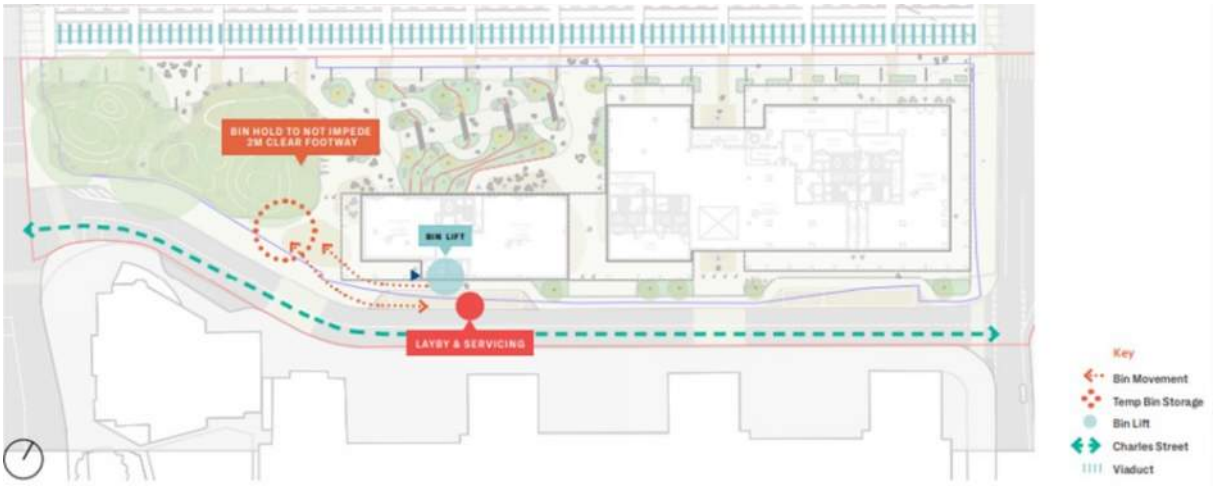


Figure 5—3 Refuse Collection Strategy, plan provided by Layer landscape Architects

Copyright © 1976 - 2026 Buro Happold. All rights reserved

6 Material Resource Strategies

The Plot H development material selection process is to consider the social, ethical, and environmental impacts of sourcing and supply. Construction materials are to follow a sustainable procurement plan process, with key components responsibly sourced to minimise environmental and socio-economic effects.

6.1 Material Specification

The design team is to prioritise material specifications with high recycled content, subject to market availability, structural, programme and financial constraints. Considerations include:

- Prioritise concrete with recycled aggregate and alternative low-carbon binders where feasible, subject to structural requirements and supply chain availability. This is being considered in landscape design for built up areas.
- Concrete with cement replacement is to be prioritised.
- Prioritise aluminium with recycled content, if possible, with post-consumer recycled content.
- Prioritise reused steel and/or new structural steel with high recycled content.
- Prioritise low carbon steel reinforcement rebar with high rates of recycled content.
- Aim to procure low carbon and/or reused raised access floor, subject to availability, warranty, and fire risk.

GGBS is a constrained resource, with an increasing carbon factor due to the economic allocation of emissions to its production from the steel industry, as noted in the IStructE Technical Position Paper from November 2025. Therefore, Buro Happold recommend specifying concrete mixes based on carbon performance targets ($kgCO_2e/m^3$) rather than mandating specific cement replacements. This would allow for more flexibility and use of other low-carbon options as opposed to specifying maximum practicable use of GGBS.

Refer to the table below for project targets around specifying materials with percent recycled content. Please note that although structural design specifications include maximum practicable use of RCA and GGBS for designated concrete mix on a project, it is advised other cement replacements be explored first based on carbon performance, and as part of sustainable procurement.

Table 6—1 Material Specifications with Percent Recycled Content Targets

Material	Building Component	% Recycled Content/Cement Replacement
Concrete	Piling	70% GGBS
	Core Walls	15% GGBS
	Suspended Slabs	15% GGBS
	Ground Bearing slabs	50% GGBS
	Columns	20% GGBS
Reinforcement	Piling	97%
	Building Frame (slabs, columns, walls)	
Glazing	Aluminium Windows	Triple glazed Frame 75% recycled content and 95% end of life recyclable content; CO2-2.3kg/k
	Aluminium Curtain Wall	

Copyright © 1976 - 2026 Buro Happold. All rights reserved

6.2 Sustainable Procurement

A Sustainable Procurement Plan (SPP) is to be undertaken as it sets out the requirements for sustainable and ethical sourcing, and consider the following elements:

- Where possible, materials will be procured locally to reduce transport-related emissions.
- All timber is to be legally harvested and certified through recognised schemes such as the Endorsement of Forest Certification (PEFC) or Forest Stewardship council (FSC) or Grown in Britain, ensuring sustainable forestry practices, with the exception of reused timber on site.
- BES 6001 Very Good or Excellent for plasterboard, aggregates, concrete, cement, asphalt, blockwork, and rebar.
- ISO 14001 certification for windows.
- Prioritise natural stone sourced within the EU. The landscape design to specify natural stone paving sourced from local quarries.
- Prioritise paints, coatings, adhesives, and sealants applied on site with low or zero Volatile Organic Compounds (VOCs)
- Absorbent materials shall be transported, stored, and protected in original packaging or sealed polyethylene sheeting until the time of installation, e.g. carpets, upholstery, furnishing, fabric, wall coverings, or acoustic panels.
- Ensure wet materials, such as adhesives, wood preservatives and finishes, sealants, glazing compound, paints and joint fillers are installed and allowed to fully cure, prior to installation of adsorptive materials.
- Prefer material suppliers to provide verified Environmental Product Declarations (EPDs).

6.3 Environmental Product Declarations

All materials specified in the building should strive for the highest sustainability criteria available. Environmental Product Declarations (EPDs) are vital to sustainable resourcing because they provide transparent, third-party verified date on the environmental impact of the specified material across its life cycle. EPDs enable sustainable material sourcing by allowing the design team to compare sustainable criteria within product selections. As such, the design team is to consider aligning its sustainable sourcing and procurement to BREEAM Mat03 ‘Responsible Sourcing’ with an aim to drive supply chains towards materials which are less injurious to the environment and society.

Copyright © 1976 - 2026 Buro Happold. All rights reserved

Appendix A BREEAM Waste 03 Operational Waste

Copyright © 1976 - 2026 Buro Happold. All rights reserved

Plot H, Sister

Operational Waste Strategy v01 DRAFT

October 2025

PREPARED FOR

RGRE Ltd, ID Manchester Ltd and The University of Manchester

Operational Waste Strategy v01 DRAFT

Prepared By	Emily Ingham
Reviewed By	Rachel Cornfoot
Report Reference	4026-CIV-XX-XX-R-H-40004
Issuing Company	Civic Engineers Limited
Issued	Version 0.1 DRAFT on 24 October 2025

Revisions

Date	Rev	Reason	Name
24/10/2025	01	Initial Issue	EI

This report is the copyright of the issuing Civic group company and is intended solely for the use of the individual or organisation to whom it is addressed. It may not be disclosed, reproduced, or referred to in whole or in part by any other party without the prior written consent of the relevant Civic group company. No liability is accepted by any Civic group company for any loss or damage arising from any unauthorised use of this report.

"Civic" is a trading name used by companies within the Civic Plus Limited group (registered number: 14208271), including Civic Engineers Limited (registered number 06824088), Civic Plus Limited (registered number: 752376), Civic Earth Limited (registered number 14897633), Civic Heritage Limited (registered number 15913145), Civic MEP Limited (registered number 09245443), Civic Rail Limited (registered number 15913179) and New Practice Limited (registered number SC623648). All are private limited companies registered in England at Carvers Warehouse, 77 Dale Street, Manchester M1 2HB. Except for Civic Plus Limited (registered number: 752376), which is registered in the Republic of Ireland at 36 Lad Lane, Baggot Street Lower, Dublin D02 T208 and New Practice Limited, which is registered in Scotland at 35 Virginia Street, Glasgow, G1 1TN.

© Civic 2025

CONTENTS

1. Introduction 2
2. National and Local Guidance 3
2.1. Manchester's Core Strategy 2012-2027, Manchester City Council, adopted July 2012 3
2.2. GD04 Waste Storage and Collection Guidance for New Developments, Manchester City Council, v7, September 2023 3
2.3. Policy DC10.1 of Manchester City Council's Unitary Development Plan (UDP) 3
3. Student Accommodation 5
3.1. Refuse Collection Strategy 5
3.2. Waste Volume and Bin Storage Requirements 5
4. Commercial Waste 6

Appendix A: Basement Plans

Appendix B: Waste Proforma

1. Introduction

Civic has been engaged by the Applicants (RGRE Ltd, ID Manchester Ltd and The University of Manchester) of Plot H, Sister, to produce this Operational Waste Strategy document to accompany the planning application for a 1,041-unit purpose built student accommodation development on the site of the former Charles Street multi-storey car park, within the IDM Masterplan (now referred to as Sister).

It is expected that a detailed Waste Management Strategy will be conditioned as part of the planning approval.

This report draws on national and local guidance.

The report does not cover construction waste management.

2. National and Local Guidance

2.1. Manchester's Core Strategy 2012-2027, Manchester City Council, adopted July 2012

Policy EN 19 Waste of the Core Strategy addresses how waste should be managed by the Applicants and by waste management site operators.

In terms of Applicants obligations, Policy sets out:

- Applicants must demonstrate the proposed development's consistency with the principles of the waste hierarchy, i.e. (prevention, reduction, re-use, recycling/composting, energy recovery, final disposal).
- Applicants must submit a waste management plan.
- Communities should be encouraged to take responsibility for the waste they create through the provision of accessible facilities.

2.2. GD04 Waste Storage and Collection Guidance for New Developments, Manchester City Council, v7, September 2023

GD04 sets out minimum standards for refuse storage for development, and includes the following requirements:

- Recycling bins must be more conveniently located, or as conveniently located as general waste provision, to encourage recycling.
- Commercial refuse will not be collected by MCC and operators of commercial premises are required by law to enter into a commercial waste agreement with a registered waste carrier for the disposal of their waste.
- All waste must be containerised and stored off the public highway.
- Where waste storage areas are to be visible from the boundary of the property, a sensitively located and designed enclosure should be provided.
- Walkways in bin storage rooms should be at least 1.3m wide.

For planning applications, a Waste Strategy should be produced which should include:

- Estimated volume and type of waste
- Internal and external storage details
- Collection strategy and refuse vehicle routing
- Number and capacity of bins to be provided, and collection frequency

GD04 provides a Proforma which should be submitted with the planning applications, and for Plot H, Sister, this has been completed and is provided at Appendix B to this document.

Waste volume is covered in Appendix C of GD04. Relevant to the proposed development are the following parameters:

- Student Accommodation weekly waste generation per room of 55l general waste, 22l pulpable recycling, 22l dry recycling and 5l food waste.

2.3. Policy DC10.1 of Manchester City Council's Unitary Development Plan (UDP)

This policy outlines specific criteria that the Council considers when evaluating planning applications for food and drink establishments, including restaurants, cafés, and hot food takeaways. The policy stipulates that, in determining such applications, the Council will have regard to:

- The general location of the proposed development, including any reference to the area in other policies in the development plan.
- The effect on the amenity of neighbouring residents, assessing potential impacts such as noise, odour, and general disturbance.
- The availability of safe and convenient arrangements for car parking and servicing, ensuring that the development does not adversely affect traffic flow or parking availability.
- Ease of access for all, including provisions for disabled individuals, to promote inclusivity and compliance with accessibility standards.

- The storage and collection of refuse and litter, requiring adequate facilities to manage waste and maintain cleanliness in the vicinity.

3. Student Accommodation

3.1. Refuse Collection Strategy

For the PBSA element, refuse collections will be once per week, carried out by MCC. This collection frequency has been used to calculate the required bin storage set out in Section 3.2.

Bins will be stored in a dedicated room in the basement, shown on the plan at Appendix B.

On collection day, bins will be moved in the bin lift from basement up to ground floor by building management. The bins will then be held in a collection area, until the refuse vehicle arrives, when bins will be moved to the proposed loading bay on Charles Street where the refuse vehicle will park.

Bins will not block the footway on collection day – residual footway available will be more than 2.0m.

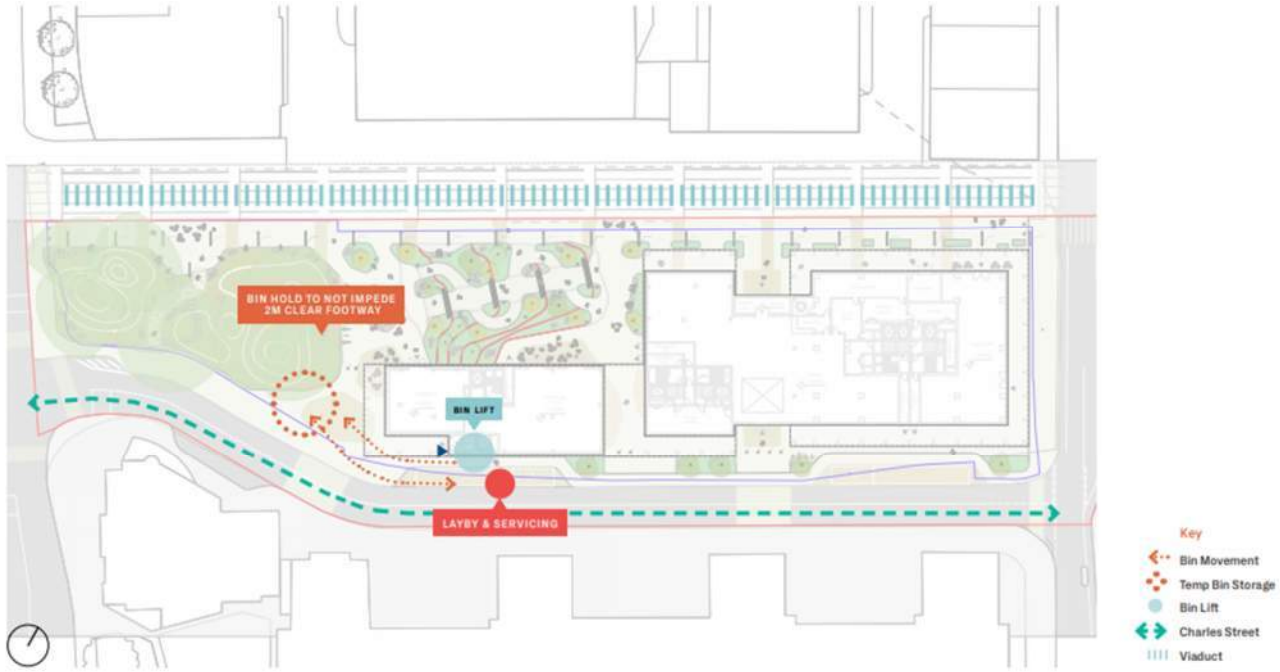


Figure 1: Refuse Collection Strategy – image produced by Layer landscape architects

3.2. Waste Volume and Bin Storage Requirements

The following standards have been applied:

- For the student accommodation element: Student Accommodation weekly waste generation per room of 55l general waste, 22l pulpable recycling, 22l dry recycling and 5l food waste.

Recycling and general waste will be stored in 1,100l eurobins. Food waste will be stored in 240l wheelie bins.

The calculated requirement and provision is set out in Table 1.

Table 1: Waste Storage Requirement and Provision

WASTE TYPE	WEEKLY WASTE VOL. PER UNIT	WEEKLY WASTE VOL. TOTAL	BIN NUMBER
General waste	57,255	57,255	53 eurobins
Pulpable recycling	22,902	22,902	21 eurobins
Dry recycling	22,902	22,902	21 eurobins
Food	5,205	5,205	22 wheelie bins
Total requirement			95 eurobins + 22 wheelie bins
Proposed provision			95 eurobins + 22 wheelie bins
Appropriate provision?			Yes

4. Commercial Waste

There will be circa 600 sqm GIA of commercial/retail space on the ground floor, at this stage these are being delivered to shell and core.

Future commercial waste stores will be contained within the unit demise and will be subject to tenant requirements and configuration. Commercial Waste collection will be arranged by the relevant tenant.

CIVIC

team-civic.com

thriving
together

Appendix B BREEAM Waste 06 Design for Disassembly and Adaptability

Copyright © 1976 - 2026 Buro Happold. All rights reserved

Functional Adaptation Strategy Study of Plot H – Charles Street (PBSA)

Compiled with input from: Hodder + Partners, HG Consulting, Roscoe
Date: 24/10/2025
Ref No: DRAFT

During RIBA Stage 2 the client and design team have collaborated to provide recommendations for measures to be incorporated, in the proposed development, to facilitate future adaptation. These recommendations, presented below, involved consideration of:

1. Feasibility: The likelihood to contain multiple or alternative building uses, area functions and different tenancies over the expected life cycle, e.g. related to the structural design of the building.
2. Accessibility: Design aspects that facilitate the replacement of all major plant within the life of the building, e.g. panels in floors and walls that can be removed without affecting the structure, providing lifting beams and hoists. Accessibility also involves access to local services, such as local power, data infrastructure etc.
3. Versatility: The degree of adaptability of the internal environment to accommodate changes in working practices.
4. Adaptability: The potential of the building ventilation strategy to adapt to future building occupant needs and climatic scenarios.
5. Convertibility: The degree of adaptability of the internal physical space and external shell to accommodate changes of in-use.
6. Expandability: The potential for the building to be extended, horizontally or vertically.
7. Refurbishment Potential: The potential for major refurbishment, including replacing the façade.

(Additional information required from consultant)

	Functional Adaptation Measure Recommendations	Measures Recommended at RIBA Stage 2	Justification for pursuing / not pursuing measure
1.	Large spanning grid for reinforced concrete frame.	Yes	Structural concrete frame column positions designed by structural engineer allow for future adaptation of internal party room layouts as to not restrict future configurations.
2.	Façade design on regular grid.	Yes	Design of façade on regularised grid works with the proposed layouts whilst also providing additional locations for internal party walls to hit the external wall as to not restrict future configurations.
3.	Structural design to allow for additional floors	No	Structure designed to maximise efficiency and to reduce unnecessary material use as maximum heights will be agreed as part of the planning application.
4.	Structural design to allow for mezzanine level	Yes	Due to the natural topography of the site, a change in levels creates taller floor to ceiling heights at ground level. Structural

			allowance is made for the possible introduction of mezzanine levels increasing active, net areas. ***Structural Engineer to confirm.***
5.	Cladding able to be removed without affecting structural integrity	Yes	Pre-cast concrete panel design will be considered for future replacement strategy. This logic will also apply to the integration of glazing systems and curtain walling on ground floor. Supplier information to confirm this. Additionally, cladding panels at level 3 plant should have contingency for removal/replacement if heavy plant machines need to be replaced.
6.	Oversized plant room to accommodate different future servicing	Yes	Approx 75m² of floorspace provided in basement (labelled at stores) could be used for additional plant equipment in the future if required.
7.	Structural design to allow simple connections for future horizontal extensions	No	Design intent not to consider horizontal or vertical expansion due to site & planning constraints, therefore making this option unfeasible.
8.	Open plan areas available to become cellular	Yes	Building structure and column positions are organised on a regular grid to minimise internal obstructions.
9.	Flexible partitions	Yes	Internal walls will be constructed from Sineat drywall partitions allowing for easier future adaptability/removal, accommodating alternative future layouts.
10.	Slab to accommodate access equipment for high level refurbishment	Yes	Davit arm systems mounted at roof level for maintenance during building use. Davit arms can be used for suspended access to make routine maintenance and repairs to building façade. Lift car sizes should be considered to be large enough to accommodate typical sizes of construction materials/equipment for future refurbishment at higher levels.
11.	Use of suspended ceilings to enable services to be rerouted	Yes	Suspended ceilings to be implemented for ease of replacement/access along with considerations for future adaptation for alternative uses in the building.

12.	Use of lightweight partition systems that are easily deconstructed to enable reconfiguration without major works	Yes	Lightweight partition systems to be used to consider a variety of scenarios including; - Adaptation of studio/cluster rooms for expansion due to possible M42/3 requirements. - Potential removal of partition walls in the event of a building use change not impacting the primary load bearing structure.
13.	***Bolted rather than welded joints to enable easy disassembly***	***Yes***	***Technical design stage to follow. Structural Engineer/Façade specialist to confirm.***
14.	Use of framed construction to enable simple changes in room size/layout	Yes	As above in point 12.
15.	Plant sized such that it can be manoeuvred through permanent openings i.e. doors	Yes	M&E Engineer has advised that plant items are selected such that they can be manoeuvred around the building through door openings and in lifts. Large items of plant such as air source heat pumps and thermal stores are selected as multiple small units or of modular construction. Heavy plant equipment such as the generator located at Level 3. Level 3 plant façade to incorporate necessary openings to allow for the manoeuvre and replacement of heavy plant equipment such as generator and/or water pumps.
16.	Modular plant so individual sections can be removed or repaired as required	Yes	As above in point 15.
17.	Panels in the floors/walls so that plant can be removed without affecting the structure	Yes	Access panels located in walls for all bedroom riser cupboards providing access to back of pods and other servicing equipment for ease of access. Larger doors/openings could be incorporated in dedicated areas for ease of plant replacement.
18.	***Plant decking appropriate for future plant changes***	***?***	***Structural slab thickness has been increased at Level 3 to accommodate plant and necessary replacement equipment. Structural Engineer to confirm.***
19.	No internal access required for major plant	No	Internal access is required to reach Level 3 plant for water

			pumps/tanks and generator. Replacement of equipment at this level can be undertaken externally using MEWP access.
20.	Lifting Beams / Hoists to facilitate moving plant	No	M&E Engineer has advised that at this stage no lifting beams or hoists are envisaged to be necessary.
21.	Internal plant located on the perimeter with vehicular access.	Yes	Substation positioned along north elevation at ground level. Service vehicles will have access along Altrincham Street through security bollards. Plant located at Level 3 is accessible via MEWP and roof access from Charles St.
22.	Service drops from roof void making rearrangement of services not intrusive	Yes	Layout of floorplates to allow stacking of services at rear of bathroom pods across all residential floors.
23.	Panels in the floors/walls so that local plant/services can be removed without intrusive works	Yes	Access panels to be provided in corridor walls for bedroom riser cupboards and main risers giving access to back of pods and other servicing equipment.
24.	Specification of services to allow for future expansion e.g. facilities for additional connections on distribution boards	Yes	M&E Engineer has advised that electrical distribution equipment is to be provided with 20% spare capacity to enable the addition of any required future circuits. Over sizing of mechanical systems to accommodate future expansion is not envisaged to be necessary as allowance for future expansion would be to the detriment of system efficiencies.
25.	Cable / duct sizing to allow for additional future capacity	Yes	As above in point 24.
26.	Service runs with access	Yes	M&E Engineer has advised that appropriate access will be provided to all service runs to allow the rewiring of the electrical distribution system. Risers are also fully accessible to allow connection to any of the piped mechanical services in the future, however, access to service runs across floor plates may have to be cut into plasterboard ceilings which are easily

			repaired if required.
27.	Power connections allow for additional capacity without intrusive works	?	As above in point 26.
28.	Data connections to allow for additional capacity without intrusive works	?	As above in point 26.
29.	Water connections to allow for additional capacity without intrusive works	?	As above in point 26.
30.	Drainage connections to allow for additional capacity without intrusive works	?	As above in point 26.
31.	***Cladding with an appropriate installation sequence to allow for any extension from the proposals without excessive deconstruction.***	***?***	***Structural Engineer and Façade specialist to confirm.***
32.	Space for horizontal expansion to the north/south/east/west	No	Not feasible as per point (6). Also, the site has a significant number of constraints including, but not exclusive to; network rail covenants, no build zones, adopted highways, and overlooking distances. The design of the building accommodates these constraints and has maximised the available footprint for the proposal.

Appendix C Circular Economy Workshop

Copyright © 1976 - 2025 Buro Happold. All rights reserved

BURO HAPPOLD

Sister Plot H

Circular Economy

17 November 2025

COPYRIGHT © 1976-2025 BURO HAPPOLD. ALL RIGHTS RESERVED

Circular Economy

COPYRIGHT © 1976-2025 BURO HAPPOLD. ALL RIGHTS RESERVED

Agenda

- **Circular Economy Design Approach**

- **Review Circular Economy Strategy**
  - Applicable policy and guidance
  - Design out Waste
    - Reuse
    - Material Specification
    - Design for Disassembly
  - Key CE Opportunities and targets
  - Comments and Feedback

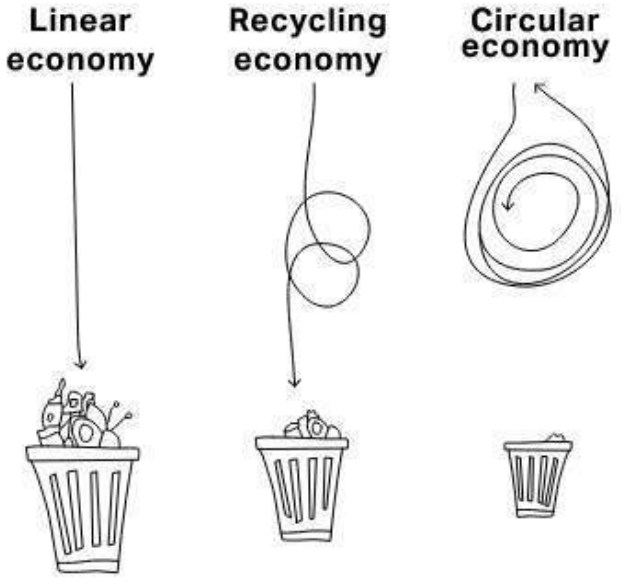
- **Next Steps**

COPYRIGHT © 1976-2025 BURO HAPPOLD. ALL RIGHTS RESERVED

What is the circular economy?

A Circular Economy is defined as follows:

- Retain material value for the longest possible time
- Integrate new ways of designing, building, operating, and deconstructing the built environment
- Efficient use of other resources like energy, water, and land
- To support an economic transition requires high level and long-term thinking as well

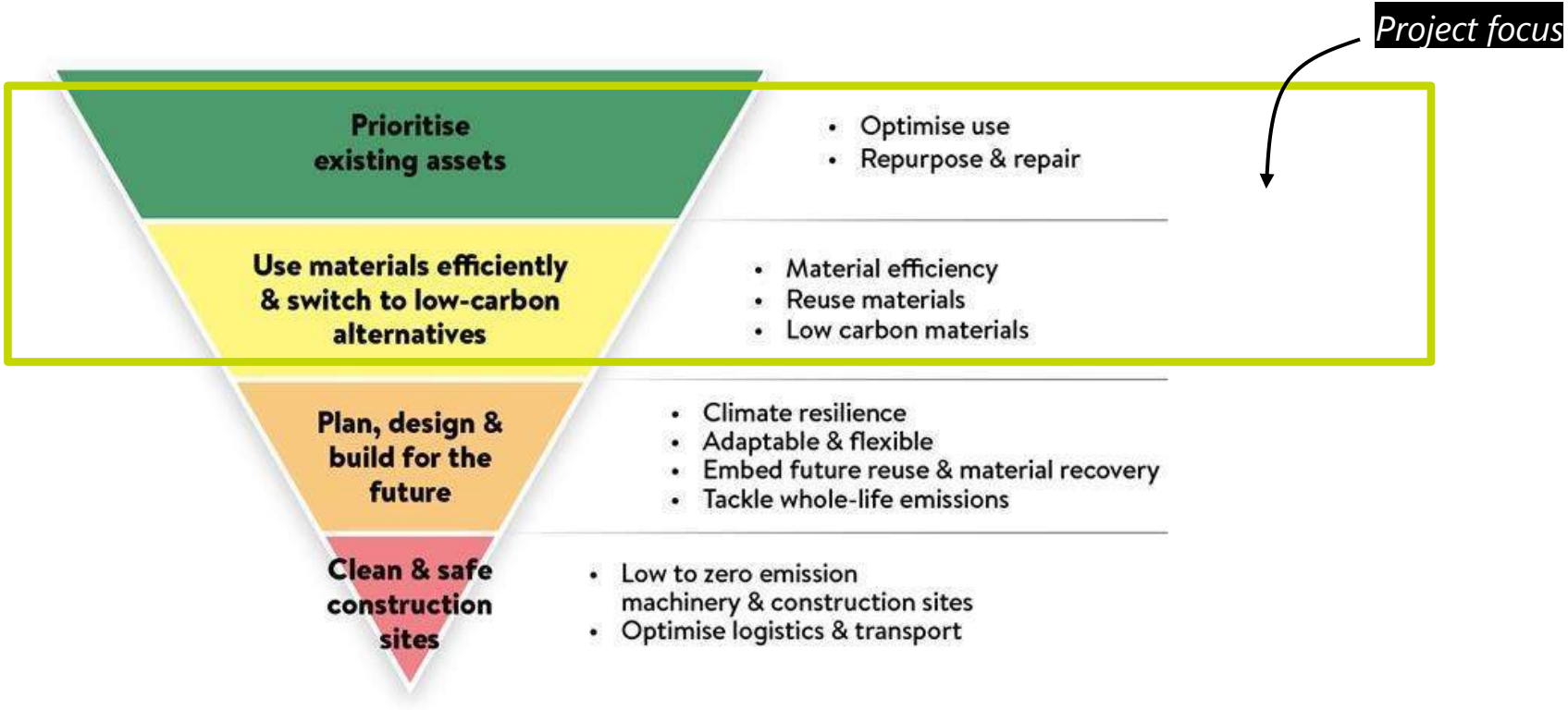


FROM TAKE • MAKE • USE • DISCARD TO RE-MAKE • USE-AGAIN

Diagram courtesy of Circular Flanders

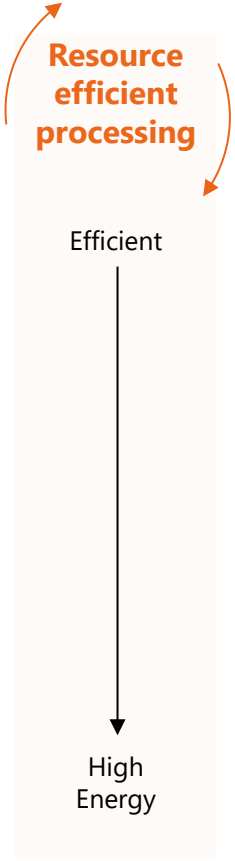
COPYRIGHT © 1976-2025 BURO HAPPOLD. ALL RIGHTS RESERVED

Circular design hierarchy



COPYRIGHT © 1976-2025 BURO HAPPOLD. ALL RIGHTS RESERVED

GLA's Circular Economy **Design Approaches**



Repair

Refurbish

Repurpose

Flexibility

Longevity

Adaptability

Reusability

Recoverability

Deconstruct

Recycle (demolish)

**GLA expectation - go beyond standard practice*

BURO HAPPOLD

COPYRIGHT © 1976-2025 BURO HAPPOLD. ALL RIGHTS RESERVED

Applicable Policies

- **Manchester's Local Development Framework – Core Strategy:**
  - Policy EC2 – Existing Employment Space
  - Policy CC6 – City Centre High Density Development
  - Policy EN 4 – Reducing CO_2 Emissions by Enabling Low and Zero Carbon Development
  - Policy EN 19 – Waste - Submit a Waste Management Plan for Construction and Demolition Waste
  - Policy EN 20 – Minerals - Promote the use of secondary/recycled aggregates, wherever possible as an alternative to primary extraction.

- **Places for Everyone (PfE) Joint Development Plan (2024):**
  - JP-S1: Sustainable Development
  - JP-S6: Resource Efficiency
  - JP-P1: Sustainable Places.

COPYRIGHT © 1976-2025 BURO HAPPOLD. ALL RIGHTS RESERVED

Guidance Documents

The Greater Manchester Combined Authority (GMCA) Net Zero Design Guidance

- supports a circular economy framework which ensures materials can be re-used and diverted from landfill or incinerations;
- building on material embodied carbon principles of re-use, recover, and recycle. The document provides guidance on material selection hierarchy, including the importance of natural materials, and specification of local sourced materials and considerations of Environmental Product Declarations (EPD).

The Greater London Authority (GLA) guidance

- a recognised methodology that enables comparison with similar projects across the UK, has been referenced across the document in support of the applicable policies, including design-out-waste, and building-in-layers design principles

COPYRIGHT © 1976-2025 BURO HAPPOLD. ALL RIGHTS RESERVED

Design for Disassembly

These measures include:

- Building envelope to consist of removable precast panels and glazing systems designed for future replacement.
- Bolted joints preferred over welded to enable easier disassembly.
- Access panels incorporated in risers and walls for plant/service replacement which enable removal without intrusive works.

A more detailed disassembly guide to be developed during the detailed design stages in alignment with BREEAM requirements.

With a focus on key elements that may require replacement during the multiple buildings' lifespan, such as façades and internal partitions, excluding load-bearing walls.

COPYRIGHT © 1976-2025 BURO HAPPOLD. ALL RIGHTS RESERVED

Material Efficiency

#	Suitable Material Efficiency Design Measures	Architectural Considerations (Hodder + Partners)	Structural Considerations (Roscoe)
1	Increasing the utilisation factor of structural members		All structural elements are designed efficiently to perform in accordance with the requirements of the Building Regulations and serviceability requirements of the end-user. Roscoe do not work to limit utilisation factors within our design (which other engineers may do to allow for some redundancy/correcting of errors at a later date).
2	Making use of recycled or reclaimed materials	Product suppliers may be able to confirm in due course.	
3	Designing for deconstruction and material reuse	Robust material choices have been made for the facade with the intention of prolonging the life-span of the building	
4	Using prefabricated elements where appropriate to reduce material waste	Facade system to be pre-cast concrete panels with integrated window systems to reduce on-site waste for window systems and cladding.	
5	Avoiding over-specification of predicted loads		The structure is designed for the permanent and variable loads as set out by the Eurocodes and the specific material self-weight of the structure and cladding specified
6	Making use of bespoke structural elements where this will reduce overall material use		Use of bespoke structural elements can be investigated subject to budget and programme requirements
7	'Rationalisation' of structural elements		Rationalisation of structural elements will form part of the design, however there will be a focus on ensuring efficiency from a design and construction perspective (rationalisation could cause over-design/use of materials which is sought to be removed in item 1).
8	Optimising the foundation design for embodied environmental impact		Foundations will be designed efficiently to transfer loads to the adequate founding strata

Key Opportunities

Existing elements

Maximise retention of existing elements

Explore opportunities to reuse the existing concrete slabs in a **PRECS (Piecewise Reuse of Extracted Concrete Structures)**- style approach of which will enable dismantling existing slabs using a non-destructive methodology.

Reuse Targets

Waste generated during the demolition process will consist of concrete and clay bricks, estimated at 78%

Potential collaborations with local concrete manufacturers explored to support the Council's objectives of promoting recycled aggregates as an alternative to primary extraction.

Reuse of demolition / excavation waste in landscape design in built up areas to minimising new materials brought to the Site.

New elements

Materiality – façade

Opportunity to explore façade materiality that balances operational & embodied impacts (e.g., provides multiple services of shading, lightweight application, modularity, etc.)

Materiality – internal

Exploring new material options for internal, non-loadbearing elements and finishes (where these are needed)
Identifying and overcoming the challenges to specifying reuse/ recycled content (e.g. warranties)

Design for disassembly

New elements to be disassemble-able

COPYRIGHT © 1976-2025 BURO HAPPOLD. ALL RIGHTS RESERVED

Circular Design Targets

Waste Targets (in alignment with BREEAM requirements)

- Construction waste resource efficiency benchmark of ≤6.5 tons of waste generated per 100m2 (GIA)
- Divert 90% by tonnage of demolition waste by tonnage from landfill

Material Specification (in alignment with WLC material spec inputs)

Material	Building Component	% Recycled Content/Cement Replacement
Concrete	Piling	70% GGBS
	Foundation	97% GGBS
	Core Walls	15% GGBS
	Suspended Slabs	15% GGBS
	Ground Bearing slabs	50% GGBS
	Columns	20% GGBS
Reinforcement	Piling	97%
	Building Frame (slabs, columns, walls)	
Glazing	Aluminium Windows	Triple glazed Frame 75% recycled content and 95% end of life recyclable content; CO2-2.3kg/k
	Aluminium Curtain Wall	

Next Steps

- BH to issue today's slide deck and meeting minutes
- BH to incorporate design team comments to CE report
  - Material reuse considerations
  - BREEAM alignment for Material and Waste credits
- **Reissue Circular Economy Statement end of November**

COPYRIGHT © 1976-2025 BURO HAPPOLD. ALL RIGHTS RESERVED

BURO HAPPOLD

Minutes

Subject	**Plot H Circular Economy**
Date	17 November 2025
Project Number	066862
Present	**Ileana Acevedo –** Circular Economy Strategy, Buro Happold **Lee Bowen** – Architectural Assistant, Hodder + Partners **Eddie Pugh** – Landscape Architect, Layer Studio **Cath Lester** – Landscape Architect, Layer Studio **Chloe Quinn** – Structural Engineer

Objective of meeting:

- *Circular Economy Design Approach Overview*
- *Refine project circularity strategy for Plot H*
- *GLA circularity framework principles.*
- *Identify opportunities for reuse, repair, recycling, and design for disassembly*
- *Key Circular Opportunities and Targets*

Item	
1.0 Circular Economy Principles	
1.1	Aim: Preserve material value, design out waste, prioritise reuse/repair/recycling
1.2	Review of circular design hierarchy: top-down prioritisation is critical with a focus on reuse of existing assets, material efficiency and low-carbon material specification
2.0 Design for Disassembly	
2.1	Envelope: Removable precast panels, glazing designed for replacement, bolted joints preferred over welds, access panels for maintenance.
2.2	Internal partitions: Secondary structures removable for future adaptability
2.3	Structure: Predominantly reinforced concrete – limits direct reuse of existing slabs/foundations
3.0 Existing Car Park Demolition	
3.1	Approx 78% of existing building is concrete and clay brick
3.2	Reuse of slabs/foundations not feasible due to structural continuity and new basement loads.
3.3	Demolition report optimistic with 100% diversion from landfill
3.4	There is an opportunity to promote recycled aggregates via local concrete manufacturer (to be confirmed).

4.0 Material Specification

4.1 Whole Life Carbon assessment includes % GGBS in concrete

4.2 Contractor to maximise GGBS use

4.3 Further review required for recycled aggregates

4.4 Landscape Architecture confirms potential use of recycled aggregates in build-ups; natural stone paving from local quarries; retention of mature trees as part of circularity narrative

5.0 Planning Application Context

5.1 Circular Economy Statement is client-driven, not a planning requirement, and intended as supplementary information for new construction application

5.2 Important to acknowledge demolition waste narrative, but clarify whether it formally ties demolition and construction applications together – Requires clarification from PM.

6.0 ACTIONS

- **Deloitte**
  - Clarify links between demolition and construction planning applications
- **Hodder + Partners**
  - Confirm PV framing can be disassembled
  - Explore minimising adhesive use where mechanical fixings or modular design can achieve the same function.
  - Provide design narrative on building envelope for disassembly
- **Roscoe**
  - Review and confirm specification for recycled aggregates in concrete
- **Layer**
  - Explore opportunities for recycled materials in landscape build-ups
  - Share updated landscape plans with Ileana
- **Buro Happold**
  - Confirm local recycled aggregates manufacturer involvement in project circularity narrative
  - Integrate design team inputs into final Circular Design Strategy

The minutes detailed herein reflect the author's recollection of the discussions held during the meeting detailed above. If you feel that these minutes are inaccurate; proposed additions, corrections and/or comments must be submitted to the author in writing within five working days of the date of these minutes. If no written responses are received within this period, these minutes will be deemed the official record of the meeting.

Ileana Acevedo
Buro Happold Limited
2nd Floor, Eastgate
2 Castle Street, Castlefield
Manchester
M3 4LZ
UK

T: +44 (0)161 233 5000
[redacted]