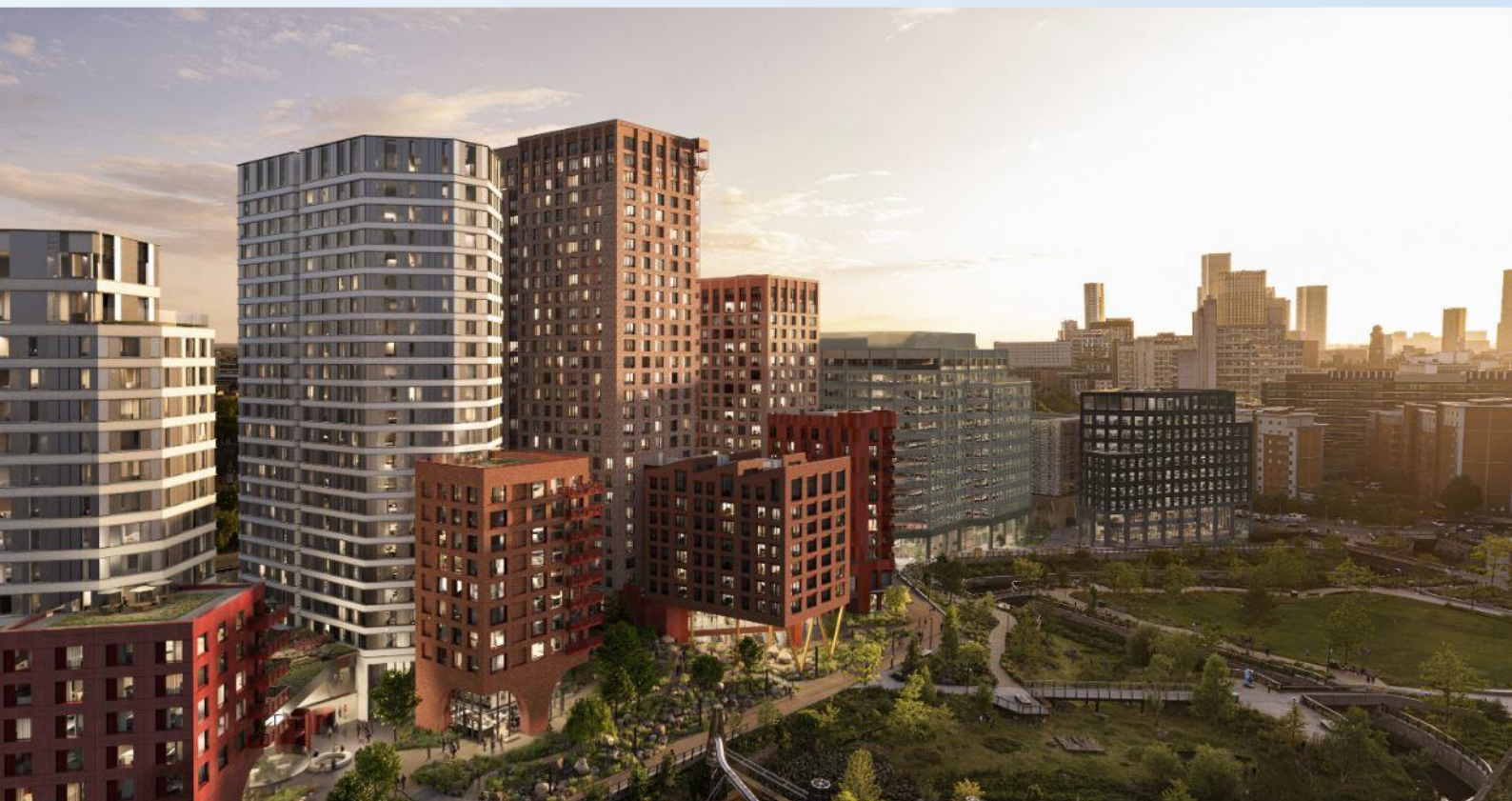




Landsec

MAYFIELD PHASE 1B: CIRCULAR ECONOMY STATEMENT





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MAYFIELD PHASE 1B: CIRCULAR ECONOMY STATEMENT

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CONTENTS

1	INTRODUCTION	1
2	DEVELOPMENT DESCRIPTION	3
3	CIRCULAR ECONOMY METHOD STATEMENT	5
4	CIRCULAR ECONOMY TARGETS AND PRINCIPLES	7
5	CIRCULAR ECONOMY DESIGN APPROACH	13
6	SOURCING AND SPECIFICATION	23
7	NEXT STEPS	27

TABLES

Table 4-1 - Existing targets	7
Table 4-2 - Design Principles	8
Table 5-1 - Initial Design Decisions	14

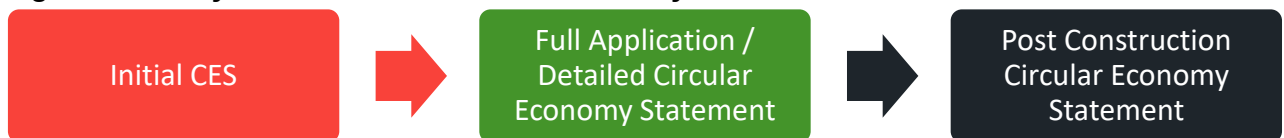
FIGURES

Figure 1-1 - Mayfield Phase 1B Circular Economy Statements	1
Figure 2-1 - Red Line Boundary for Mayfield Phase 1b	4
Figure 3-1 - The Circular Economy	5
Figure 4-1 - Building Layers	12
Figure 5-1 - Design approaches for a new building	13

1 INTRODUCTION

- 1.1.1. A Circular Economy Statement (CES) presents the strategy for securing more efficient use of non-renewable material resources and to reduce the lifecycle impact of materials used in construction and operation.
- 1.1.2. The purpose of this Initial Circular Economy Statement is to demonstrate how the Proposed Development has - and will continue to - incorporate circular economy measures through design and construction activities, and into the lifecycle of the assets and its componentry.
- 1.1.3. This Initial CES provides a foundation for an upcoming Detailed CES and a Post Construction CES. All CES will align with the principles and policies on circular economy as set out by various organisations such as Manchester City Council and the Waste and Resources Action Programme (WRAP). Both this document and the upcoming CES will align to the Greater London Authority (GLA) which has produced a framework for the content and completion of CES¹.
- 1.1.4. This Initial CES presents the current principles, targets and design decisions determined at this time.
- 1.1.5. A future Detailed CES will provide principles, targets and design decisions including quantified material estimates, an estimated bill of quantities and an estimated recycling and waste reporting.
- 1.1.6. A Post Construction CES will then report on performance against the targets within the Detailed CES, whilst providing an actual bill of materials and actual recycling and waste reporting.
- 1.1.7. The figure below outlines the series of CES expected to be delivered for the Proposed Development.

Figure 1-1 - Mayfield Phase 1B Circular Economy Statements



- 1.1.8. The structure of this strategy is as follows:
 - **Section 2** - Development description;
 - **Section 3** - Circular design method statement: outlines the relevant circular economy policy context, and key definitions and design principles that have been considered to adopting circular practice in support of a sustainable and 'future ready' development;
 - **Section 4** - Circular economy principles and targets: detailing the principles to be adhered and setting targets that are expected, or which will be aspired to, across the Proposed Development;

¹ Greater London Waste Authority. Circular Economy Statement Guidance. Available online at: <https://www.london.gov.uk/programmes-strategies/planning/implementing-london-plan/london-plan-guidance/circular-economy-statement-guidance>

- **Section 5** – Circular economy design approach: sets the context for how circular economy practices are to be considered against the layers of the Proposed Development, and across the lifespan of the building, including the current actions taken across each layer, and lifecycle stage, of the Proposed Development to minimise material usage;
- **Section 6** – Sourcing and Specification which outlines the actions to be taken to ensure sustainable materials are responsibly sourced for the Proposed Development; and
- **Section 7** – Next steps for developing future CES.

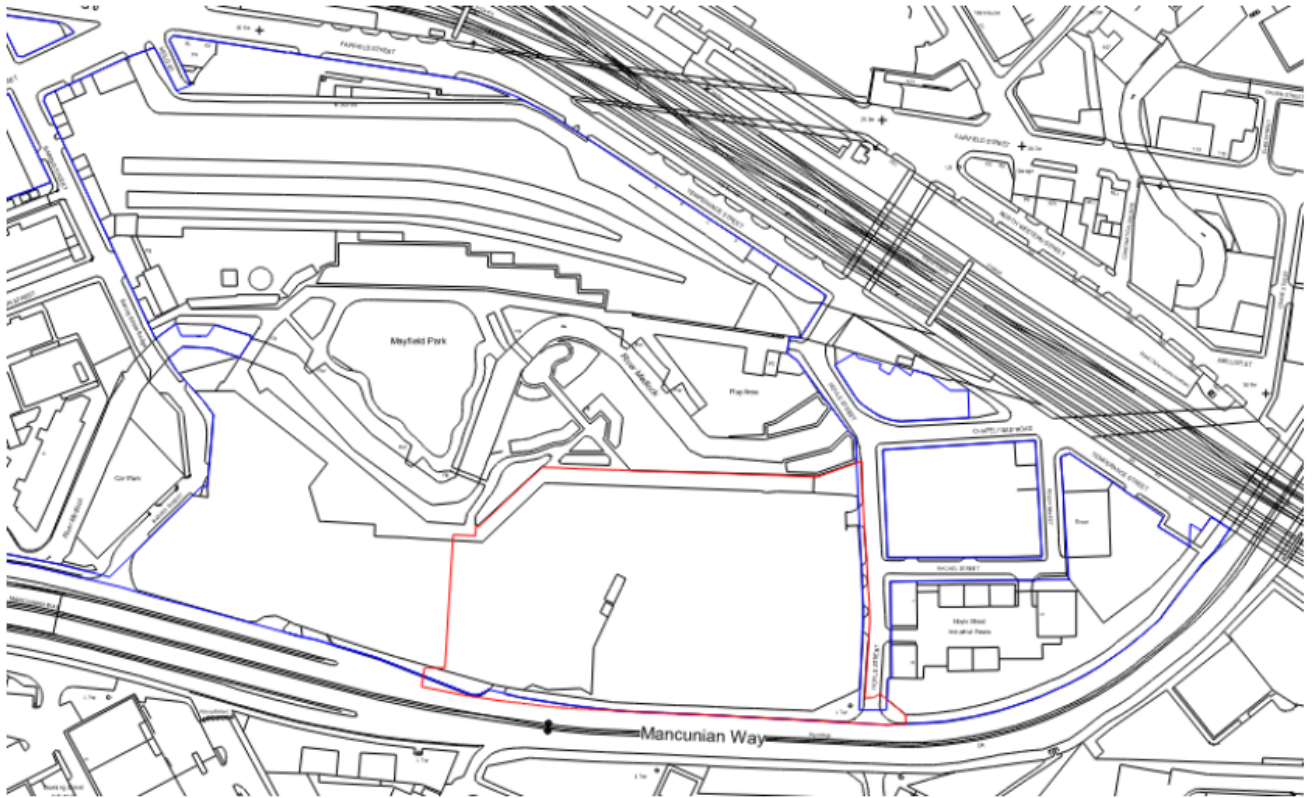
1.1.9. This CES references the content of the following documents which should also be considered in parallel with this CES:

- Mayfield Phase 1b (Residential) – RIBA Stage 2 (Doc Reg: 70117910-WSP-1B-XX-RP-MD-500201)
- Environmental Statement – Volume 3, Mayfield Phase 1b, December 2024
- Mayfield, Phase 1B (Plots J and K), Environmental Standards Statement (ESS) (Doc Reg: MAY-WSP-Z0-XX-RP-M-500502)
- Operational Waste Management Strategy
- Mayfield Phase 1b. Environmental Statement. Volume 2 (Technical Appendices)
- Landsec Sustainable Development Toolkit

2 DEVELOPMENT DESCRIPTION

- 2.1.1. In 2018, Manchester's Executive Committee endorsed the 'Mayfield Strategic Regeneration Framework' ('SRF'), setting a clear ambition to guide the redevelopment, re-modelling and refurbishment of the site within the SRF boundary. The ambition for Mayfield, as set out in the SRF, is to deliver a world class, transformational, distinctive and imaginative commercially led neighbourhood, anchored by Mayfield Park, which will become a powerhouse of socio-economic productivity.
- 2.1.2. Following the endorsement of the initial SRF by Manchester City Council in 2018, applications were submitted in 2019 and approved in 2020 relating to the Poulton, multi-storey car park, Mayfield Park and the Republic. This comprised over 400,000 sq. ft. of commercial floorspace, and these planning permissions were implemented through the discharge of pre-commencement conditions and physical works being undertaken on site in 2021.
- 2.1.3. The Mayfield Park phase of development is now complete and operational, and the Mayfield Depot has been reactivated by the existing tenant, Broadwick, who operate it as a mixed-use leisure, food, and drink destination. The permissions were revised in June 2023 to account for design changes brought about by a changing regulatory environment.
- 2.1.4. The Mayfield Phase 1B Proposed Development will consist of:
- The erection of two residential blocks (Use Class C3), comprising 879 no. residential units contained within four buildings ranging from 7 storeys to 24 storeys in height (Plot J) and 9 to 28 storeys in height (Plot K);
 - Lower ground and upper ground floor commercial spaces comprising restaurant and / or retail units (Use Class E(b) and/or E(a));
 - Indoor sports facilities (Use Class F2) together with highways works, access, servicing, rooftop plant, cycle parking and back of house; and
 - Delivery of associated public realm and other associated works for each relevant phase.
- 2.1.5. The Site is located adjacent to the north of the Mancunian Way, to the south of Mayfield Park, to the west of Hoyle Street and to the east of Mayfield Phase 1a, with Baring Street beyond. See Figure 2-1 for red line boundary.
- 2.1.6. The site comprises previously developed land, which has been largely cleared following the demolition of a former logistics warehouse and vehicular compound in 2019. Following the demolition of those structures, the area was used as a site compound for materials and vehicles during the construction of Mayfield Park between 2020 and 2022.

Figure 2-1 - Red Line Boundary for Mayfield Phase 1b

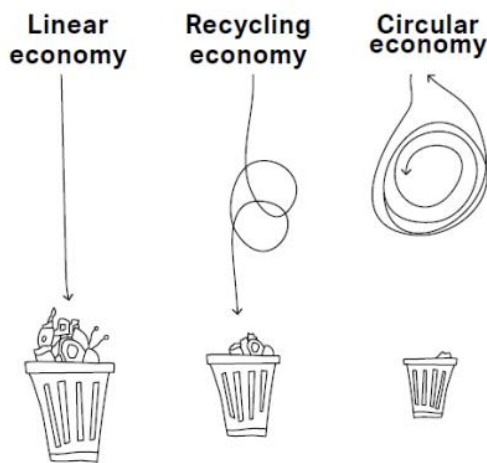


3 CIRCULAR ECONOMY METHOD STATEMENT

3.1 CIRCULAR ECONOMY DEFINITION

- 3.1.1. There are several varying definitions of the circular economy. The Ellen MacArthur Foundation defines circular economy as: “a systems solution framework that tackles global challenges like climate change, biodiversity loss, waste, and pollution”. This is differentiated from the linear and recycling economy in seeking to maximise the lifespan of materials and to eradicate the creation of wastes, as shown in Figure 3-1.

Figure 3-1 - The Circular Economy



- 3.1.2. Therein, the circular economy is based on three principles, driven by design:
- ‘Eliminate waste and pollution’,
 - ‘Circulate products and materials’ (at their highest value) and
 - ‘Regenerate nature’.
- 3.1.3. Therein, a circular economy decouples economic activity from the consumption of finite resources and removes, insofar as possible, the creation of waste. It is a resilient system that is good for business, people and the environment.
- 3.1.4. To achieve this transition, a framework of principles has been established in the GLA CES Guidance. For buildings, this entails developing a regenerative built environment that prioritises retention and refurbishment over demolition and rebuilding. It also involves designing buildings that are durable and adaptable to prolong their lifespan, and to enable the recovery, reuse or recycling of components and materials.
- 3.1.5. The GLA’s CE Principles are:
- Building in layers: ensuring that different parts of the building are accessible and can be maintained and replaced where necessary;
 - Design out waste: ensuring that waste reduction is incorporated from project inception to completion, including consideration of standardised components, modular build, and reuse of secondary products and materials;
 - Design for longevity: using durable materials and designing beyond the expected lifespan;

- Design for adaptability & flexibility: considering how the design can adapt to changing user needs;
- Design for disassembly: enabling the recovery and reuse of components; and
- Using systems, elements & materials that can be reused and recycled

3.1.6. The following design measures and principles have been carefully considered during the design of the Proposed Development at this stage and will continue to inform decisions across design, procurement, construction and operation:

- Minimisation of excavation waste
- Offsite/modular construction
- Material efficiency
- Use of recycled content in materials
- Material circularity
- Structural and fabric resilience
- Life-cycle assessments
- Low carbon construction
- Lean design principles
- Adaptability
- Flexibility
- Responsible procurement
- Suppliers take-back scheme
- Sustainable sourcing
- Local sourcing
- Supply chain engagement
- Tenant engagement
- Flexible and easily accessible waste segregation and storage spaces
- Waste minimisation schemes
- Consolidated waste schemes
- Smart logistics

3.1.7. This CES and future CES will continue to be developed in collaboration with the project team so to maximise the incorporation of circular opportunities. This will include, but is not limited to, specialists in facades, structures, architecture, spatial planning and Mechanical, Electrical and Plumbing (MEP). Future CES will continue to engage with those disciplines to maximise the circular economy opportunities implemented across the Proposed Development.

4 CIRCULAR ECONOMY TARGETS AND PRINCIPLES

4.1 CIRCULAR ECONOMY TARGETS

- 4.1.1. Circular economy targets will drive forward design decisions that enable sustainable use of materials across the construction and operation of the Proposed Development.
- 4.1.2. This CES provides a summary of existing targets. It also demonstrates how future targets will be considered and incorporated within the Proposed Development. Landsec will continue to provide updates to the targets across future CES. These targets will demonstrate Landsec's commitments to minimising material use and eradicating wastes across the construction and operation of the Proposed Development.
- 4.1.3. Existing Landsec targets for the Proposed Development are summarised below:

Table 4-1 - Existing targets

Focus area	Target
Building and structural reuse	Determine percentage of structure (by GIA) which is reused/retained/refurbished
Design for adaptability and disassembly	Prioritise reversible structural connections and avoid chemical fixings and composite products wherever possible
Site won materials including reuse of existing materials	A Pre-Deconstruction/Pre-Refurbishment Audit should be undertaken pre-planning
Responsible sourcing	100% compliance with Landsec prohibited materials brief unless specifically agreed otherwise 100% of core construction materials are responsibly sourced - Source materials with Environmental Product Declarations (EPD) wherever possible - Achieving FSC Project Certification for all schemes other than those using structural timber - Source all core construction materials from UK and Europe
Construction waste	- Zero non-hazardous waste to landfill - A minimum of 75% of waste is recycled or reused (excluding energy recovery) - Reduce construction waste to 6.5 tonnes/100m² and to target 3.2 tonnes/100m² (GIA) by 2030 - Collect data on off-site waste generation wherever possible

- 4.1.4. In its Sustainable Consumption & Production Plan for 2022-2025², the Greater Manchester Combined Authority has also set targets including:
- a 65% recycling rate for municipal solid waste; and
 - no more than 10% to landfill by 2035.
- 4.1.5. In future CES, Landsec will explore the opportunity to develop a range of additional targets specific to the Proposed Development.
- 4.1.6. For each target adopted, a suitable metric and reporting mechanism will be provided in future CES.

4.2 DESIGN PRINCIPLES

- 4.2.1. Design principles guide discipline leads – including Architects and Engineers – to consider circularity within their technical area.
- 4.2.2. The design principles that will be considered across the design, construction and operation of the Proposed Development are summarised in the table below. These are built upon the GLA CES Guidance.
- 4.2.3. Landsec will work with discipline leads to embed these principles across the building layers and design decisions of the Proposed Development. Table 4-2 summarises the design principles. The remainder of this CES then presents examples where these design principles have been incorporated within the current design of the Proposed Development.

Table 4-2 - Design Principles

Principle	Measures under consideration
Building in layers	• We will ensure that different parts of the building are accessible and can be maintained and replaced efficiently, where necessary.
Designing out wastes	• We will ensure that waste reduction is planned in from project inception to completion, including consideration of standardised components, modular build, and reuse of secondary products and materials.
Designing for longevity	• We will ensure that we design to avoid a premature end of life for all components by considering maintenance and durability. • We will design for future climate adaptation and resilience by considering overheating risks in future weather files. • We will explore use of architectural spatial planning to incorporate standardised grid or layouts. • We will maximise the durability of the building structure through careful selection, protection and maintenance of components

² Greater Manchester Combined Authority. Sustainable Consumption and Production Plan. Available online at: <https://democracy.greatermanchester-ca.gov.uk/documents/s15782/SCP%20strategy%202020-2024%20final%20draft.pdf>

Principle	Measures under consideration
Designing for adaptability or flexibility	We will ensure that we design with consideration as to how a building might be altered to prolong its life, for instance by adaptation, addition or contraction, to suit new uses or patterns of use. This includes allowing easy rearrangement of internal fitouts and arrangements to suit the evolving needs of occupants.
Designing for replaceability or disassembly	We will ensure that we design to facilitate easy removal and upgrade (ideally for reuse, remanufacturing or recycling) assets on a part-by-part basis. This includes allowing the building and its components to be taken apart with minimal damage. If designed well, it should be possible to replace any component in accordance with this ethic.
Component or material reuse	- We will use systems, elements or materials that can be reused and recycled where possible: preferably in their original form and with minimal reprocessing. - We will prepare for reuse by enabling checks, cleaning or easy repairs to materials so that they can be used again for their original purpose. - Materials can be reused as a whole; redeployed as modules; or reused as a kit of parts on one or more different sites where suitable.
Material selection	Appropriate material choices are key to carbon reduction. We will ensure that there is synchronicity between materials selected and planned life expectancy of the building reduces waste and the need for replacement, thus reducing in use costs.
Minimise operational water use	We will consider the choice of components, fixtures, fittings, materials and durability of systems, to use water efficiently, and to avoid leakage and subsequent building damage.
Building shape and form	We will adopt compact and efficient shapes to minimise material use and to reduce both operational and embodied carbon emissions for a given floor area. This means a more efficient building overall resulting in lower construction and in use costs.
Building life expectancy	Defining building life expectancy gives guidance to project teams as to the most efficient choices for materials and products. This aids overall resource efficiency, including cost efficiency and helps future proof asset value.
Local sourcing	We will source materials locally and sustainably where possible. Sourcing local materials reduces transport distances and supply chain lengths and has associated local social and economic benefits.
Minimising waste	Waste represents an unnecessary and avoidable carbon cost. Buildings will be designed to minimise fabrication and construction waste, and to ease repair and replacement with minimum waste, which helps reduce initial and in-use costs.

Principle	Measures under consideration
Efficient fabrication	Efficient construction methods (e.g., modular systems, precision manufacturing and modern methods of construction) contribute to better build quality, reduce construction phase waste and reduce the need for repairs during post completion and the defects period (snagging). Modern Methods of Construction will be explored where suitable.
Lightweight construction	Lightweight construction uses less material which reduces the carbon footprint of the building as there is less material to source, fabricate and deliver to the Proposed Development. We will consider lightweight materials where suitable.
Regenerative design	We will explore use of materials that can be returned to natural nutrient cycles once their function has been fulfilled. Removing CO2 from the atmosphere through materials and systems absorbing it makes a direct positive contribution to carbon reduction.

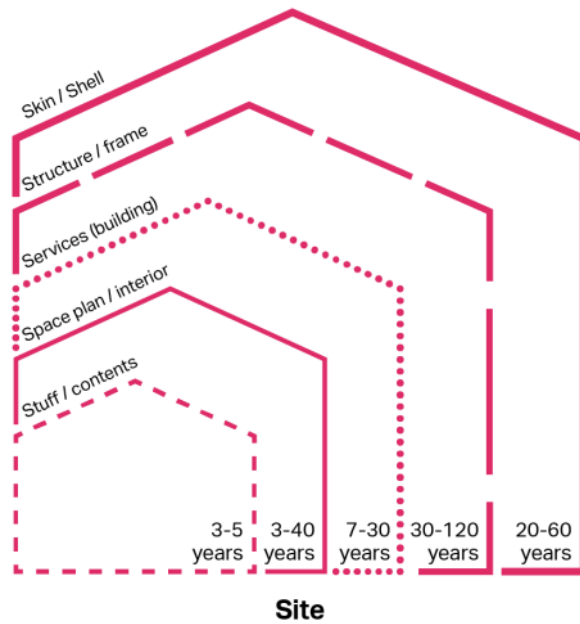
4.3 BUILDING IN LAYERS

- 4.3.1. A building should be designed and constructed in layers. This involves each layer having its own lifecycle, lifespan, and design decisions that incorporate circular principles so to minimise material use and extend the lifespan of the layer. Each layer should be independent, accessible, and removable whilst, where possible, upholding its value. This will support each layer's reuse and recycling.

4.3.2. Figure 4-1 shows the building layers. The principal layers can be identified as follows:

- **Shell/Skin:** the facade should, where possible, be independent from the structure and easily demountable at the end of its lifespan.
- **Structure:** foundations and load-bearing elements including reinforced concrete columns will be designed to last the life of the building and the building layers of the development stand independently, especially when components have different lifespans
- **Services:** MEP plant and service distribution will be provided with sufficient isolation points. Sections will be able to be replaced while other areas remain isolated.
- **Spaces:** are flexible and adaptable for any future changes in use. The spaces can easily be adapted into residential clusters, with minimal alterations or need for resource intensive works.
- **Contents:** contents will be made of durable materials and are independent of the building, allowing for easy replacement when needed

Figure 4-1 - Building Layers

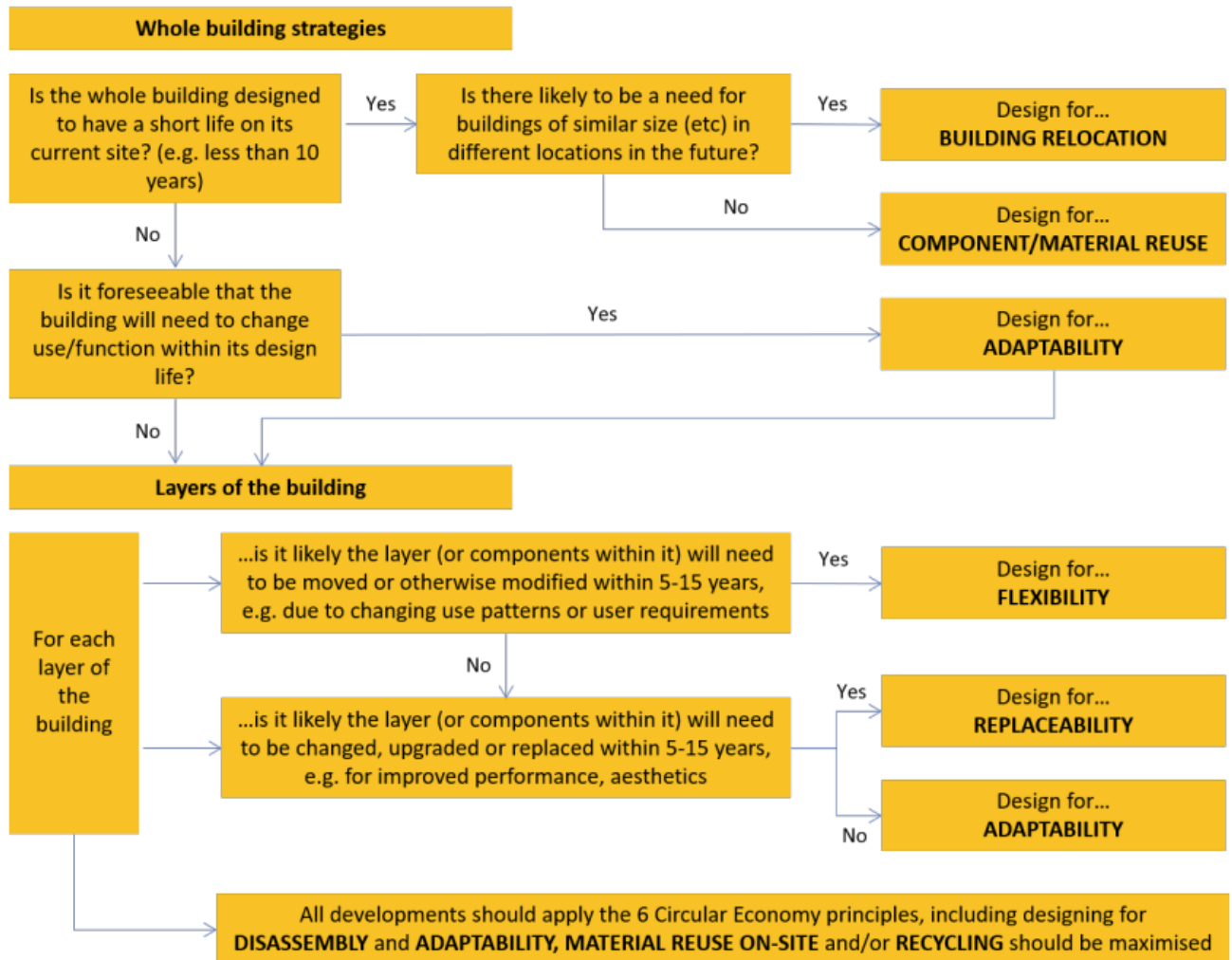


A summary of the Circular Economy design principles by building layer is included in Table 5-1.

5 CIRCULAR ECONOMY DESIGN APPROACH

- 5.1.1. Due to the Proposed Development being a new development, with no significant demolition or excavation works, the relevant Circular Economy design approaches focus upon the use of design principles to minimise material usage. Figure 5-1 shows some of the approaches adopted for the new development including design for adaptability, disassembly, reuse and recycling.

Figure 5-1 - Design approaches for a new building



- 5.1.2. A summary of the design approaches adopted for each building layer are summarised in Table 5-1. These approaches will continue to be updated across future CES showing the commitments being taken to embed circularity into the design, construction and operation of the Proposed Development.
- 5.1.3. Landsec will explore opportunities to adopt a **building and material passport** for the Proposed Development to support opportunities to reuse the building element at high value in the future.
- 5.1.4. A study of the PCE DfMA precast concrete system will also to be undertaken to understand the potential for reuse of structural elements at end of life.

Table 5-1 - Initial Design Decisions

Commitments		Design Layer				
		Skin / shell	Structure / Frame	Services	Space / interior	Contents
Conserve resources, increase efficiency and source sustainably	Minimise the quantities of materials used	Design avoids overspecification of components. Standardisation of structural elements via standard grid layout and enables optimisation of structural design such as through stacking of columns. This is also to be considered as part of the PCE DfMA precast concrete frame study, which standardised offsite manufacturing of parts, reducing waste and enable future reuse through demountable structural elements at end of life. Standardised approach to windows by limiting the number of window types.	Services are routed in the most efficient manner, taking the shortest route to minimise use of material (e.g., cabling). Horizontal distribution ventilation strategy was considered during the design development which has standardised arrangement offering efficiency of scale. This has been balanced alongside upfront embodied carbon considerations to develop a holistic understanding of performance against energy, embodied carbon, cost, and maintenance The plant has been moved from the roof to the basement to reduce the amount of structural material at the upper levels and utilise basement / foundation elements.	Opportunities will continue to be explored and updated in future CES.	Not applicable	
	Minimise the quantities of other resources used (e.g., technological assets)	Reusable equipment and loose fit systems will be considered where suitable.	Opportunities will continue to be explored and updated in future CES.	Lightweight partitions will be used within buildings to reduce material use.	Not applicable	
	Specify and source materials and other resources responsibly and sustainably	Structural systems prioritise recycled materials like steel, aggregates, and cement with high recycled content to reduce primary material demand.	Materials/products will be sourced from manufacturers with certification under BES 6001.	Materials/products will be sourced from manufacturers with certification under BES 6001.	Materials/products should be sourced from manufacturers with certification under BES 6001. Timber will be sourced from legal and sustainable sources as defined by the UK Government Central Point of Expertise on Timber, evidenced through a scheme	

Commitments		Design Layer				
		Skin / shell	Structure / Frame	Services	Space / interior	Contents
	(including through the use of locally sourced and recycled material)					recognised by CPET, such as the Forest Stewardship Council (FSC), alternatively Cat B where alternative documentary evidence is provided.
	Reuse and retrofit of existing buildings	Not applicable				
	Reuse of components and materials with minimal processing	There is limited opportunity to recover and reuse existing materials. However, the use of crushed and graded demolition material will be considered for reuse. It is anticipated arisings will be re-used directly on site to construct the subbase of the temporary access road. For products that can be replaced, such as services, opportunities will be identified to allow for spent items to be repaired and/or reused by third parties. A study of the PCE DfMA precast concrete system will be undertaken to understand the potential for reuse of structural elements at end of life				
	Material selection based on life expectancy of the building and embodied resource demands and/or maintenance requirements.	Natural and low-carbon materials with minimal processing will be selected for elements in the Shell/Skin of the buildings where possible. Insulated Glazing Units (IGU) and mineral wool insulation, and a low U-value (as a measurement of thermal transmittance) have been specified across the scheme, which will reduce	In accordance with Requirements the minimum design life of the sub and superstructure is to be 60 years. Design life of steel components depends on maintenance. Exposed steelwork and concrete wearing surfaces specified in the design will require periodic inspection and maintenance, to function properly for at least the building design life.	Hard wearing finishes will be specified to ensure minimal maintenance or replacement within the design life of the buildings. This will be balanced with low carbon and natural materials where they can be specified and do not result in increased replacement/maintenance frequency.		

Commitments		Design Layer				
		Skin / shell	Structure / Frame	Services	Space / interior	Contents
		the energy consumption through the scheme lifespan.				
	Efficient fabrication through the use of modern methods of construction (e.g., modular systems, precision manufacturing etc.)	Production-efficient methods such as off-site manufacturing will be used for elements of the services (and space/interior) where possible, reducing material wastage that commonly arises with typical approaches to on-site fitting.			Opportunities will continue to be explored and updated in future CES.	Modular products will be produced to reduce wastes associated with bespoke items where possible
	Use of lightweight materials	Primary element of one of the facades is anodised aluminium which increases durability and therefore reduces the requirement for refurbishment during the service period of the building.	Concrete grades will be reviewed to reduce the weight of reinforcement.	Opportunities will continue to be explored and updated in future CES.	Lightweight partitions will be used to minimise material use where suitable.	Not applicable
Design to eliminate waste (and for ease of maintenance)	Design for longevity and durability	Post-tensioned concrete is currently specified for the structural frame which is durable and achieves 120 mins fire resistance which also provides a level of	Superstructure elements that are not easily accessible have generous corrosion protection, exceeding 50-year life for predicted environmental conditions.	The plant has been moved from the roof to the basement to reduce the amount of structural material at the upper levels and utilise basement / foundation elements.	Access panels will be considered into the design of bathrooms and kitchens <i>in lieu</i> of destructive access. IPS systems will be specified with pre-plumbed sanitaryware fitted to the IPS system as far as possible to reduce site assembly activity.	Door stoppers will be provided to avoid damage to the doors/walls. In built furniture and kitchens will utilise robust materials to maximise durability.

Commitments		Design Layer				
		Skin / shell	Structure / Frame	Services	Space / interior	Contents
		adaptability of the structural layer. The structural frame is designed for the lifespan of the building, façade elements other than glass and gaskets are also aiming to be designed for the building lifespan. Primary element of one of the facades is anodised aluminium which increases durability and therefore reduces the requirement for refurbishment during the service period of the building	Substructure elements cast against ground are designed for a working life of more than 100 years. Column stacking has been prioritised to limit transfer structures and increased column sizes, as well as keeping slab depths down Reduced slab depths have been explored to limit material use; however, this is balanced with the durability and flexibility requirements due to columns being introduced within the living space and the potential reduced fire requirements due to structural tolerances			
	Designing for adaptability and flexibility	Opportunities will continue to be explored and updated in future CES however a functional adaptation strategy study	Opportunities will continue to be explored and updated in future CES however a functional adaptation strategy study	As a general principle, adaptability and flexibility will be considered for the design of the 'Services and Space' layouts to minimise waste generation during maintenance and future reconfigurations. Further detail will be provided at future design stages.	Residential units are unobstructed from columns and use modular pods for utility and bathrooms which are to be made the same. Living spaces to have exposed soffits. Accessible panels are considered for upper floors and corridors are also being	Lightweight partitions can be easily disassembled should future space requirements change within the retail areas. Living spaces to have exposed soffits. Accessible panels are considered for upper floors and corridors are also being considered to omit suspended ceiling

Commitments		Design Layer				
		Skin / shell	Structure / Frame	Services	Space / interior	Contents
		suggests limited opportunities.	suggests limited opportunities.		considered to omit suspended ceiling panelling to reduce emissions and ensure accessibility to MEP equipment. Living spaces have convertibility to accommodate changes of in-use by ensuring unobstructed floor areas, providing a flexible space for change in living and working practises. Areas like the glasshouse are designed for various functions to maximise space utilisation.	panelling to reduce emissions and ensure accessibility to MEP equipment.
	Designing for replaceability or disassembly	A study of the PCE DfMA precast concrete system will be undertaken to understand the potential for reuse of structural elements at end of life Reversible connections were explored for the structural frame via the PCE DfMA precast concrete system (kit of parts which enables disassembly and reuse of elements). This is to be explored in more detail to understand the trade-offs with increases in upfront carbon for the structural elements compared to the existing proposed design (e.g., due to load-bearing concrete internal walls replacing architectural stud walls etc).		Services are separately attached to the structures, operating independently across the projects other than where services voids are cast in the structural frame.	Lightweight internal wall systems can be easily replaced or upgraded. During technical design, fittings will be investigated further to determine if items such as screws can be replaced with a more circular product. Some elements of layers are to be considered to be designed out to avoid future waste, such as ceilings in corridors and in the bedrooms. Where ceilings are provided these are suspended ceiling panels to enable accessibility to services and avoiding waste from plasterboard or non-reversible finishes.	Proposed internal finishes and decoration, whilst high quality and durable, can easily be replaced and maintained if required. Loose equipment is independent from the rest of the building and can be moved around to suit the internal activity.
	Design out construction, demolition, excavation	Not applicable	Use of crushed and graded demolition material on the Proposed	The size and dimensions of services has been considered in the design to avoid excessive cut offs and wastage.	Not applicable	Not applicable

Commitments		Design Layer				
		Skin / shell	Structure / Frame	Services	Space / interior	Contents
	and municipal waste arising		Development will, subject to further suitability analysis, be used in the temporary piling mat during construction, where possible. Excavation waste arising from the development – which cannot be reused on site - should be removed from site, treated where necessary, and re-used as fill on suitable projects. It is anticipated that at least 95% of demolition and excavation waste will be diverted from landfill.			
	Design building shape and form for efficient material use during construction and operation	Not applicable however opportunities will continue to be explored and updated in future CES.				
Manage waste sustainably and at the highest value	Manage/ minimise demolition and	The use of crushed and graded demolition material will be considered for	Reuse of existing materials and suitable treatment of hazardous soil will be investigated.	Incoming services take the shortest route possible to minimise length of trench required to be excavated.	Plasterboard wastes will be taken to a Waste Transfer Station, by our Waste Contractor, and recycled where possible.	Not applicable however opportunities will continue to be explored and updated in future CES.

Commitments		Design Layer				
		Skin / shell	Structure / Frame	Services	Space / interior	Contents
	excavation waste	use in foundations or backfill opportunities. There are only modest opportunities to recycle it within concrete mixtures. Reuse of existing materials and suitable treatment of hazardous soil will also be investigated. Opportunities will be explored for the relocation and reuse of noncontaminated soils, within the site. An authorised contractor will be appointed to remove and dispose of any hazardous soils which cannot be reused on the site.	Opportunities will be explored for the relocation and reuse of noncontaminated soils, within the site. An authorised contractor will be appointed to remove and dispose of any hazardous soils which cannot be reused on the site.			
	Manage/ minimise construction waste	A Construction Environmental Management Plan has been developed and outline measures to minimise waste generation, to reuse materials for temporary works, to implement a clear labelling system for waste segregation and to explore the use of just-in-time procurement, plasterboard recycling services and take-back schemes for packaging materials. The CEMP ensures compliance with all regulation and include staff engagement through training. Construction waste will be cleared daily to a main holding skip. The waste should be segregated into five categories at an off-site waste transfer station subject to the chosen supplier; the categories are likely to include: CAT A: Hazardous waste – Paint tins, mastic etc				

Commitments		Design Layer				
		Skin / shell	Structure / Frame	Services	Space / interior	Contents
		CAT B: Metal CAT C: Timber CAT D: Plasterboard CAT E: General Waste Waste collection suppliers will sort waste for recycling (providing relevant percentage data), and hazardous waste will be stored separately. On-site measures include material reuse, recycling facilities, and efficient logistics to reduce environmental impacts. The Proposed Development complies with the waste hierarchy principles, prioritising prevention, reuse, and recycling over disposal, ensuring alignment with regional sustainability objectives.				
	Manage/ minimise municipal waste (and industrial waste) during operation, if applicable	The Operational Waste Management Strategy projects annual waste arisings of 871.7T of waste from the Proposed Development, equating to 16.8T per week. Landsec will ensure that effective systems are put in place and subsequently maintained and managed to allow and encourage residents and other users of the buildings to segregate recyclables and food waste in preparation for collection. The design includes dedicated waste storage and recycling facilities for effective waste management including: Residential Waste: - Refuse chutes for convenient disposal. - Dedicated storage for bulky items. - Refuse rooms meet MCC volume requirements with additional bins for continuous management. Commercial Waste: - Managed separately with dedicated refuse stores. - Waste streams include recycling, food waste, and residual waste in specific bin sizes (1100L for recycling and residual waste, 240L for food waste). Public Spaces: - Accessible bins to maintain cleanliness and support sustainable disposal. These provisions ensure efficient, sustainable, and compliant waste management, aligning with the development's sustainability principles. Please see the Operational Waste Management Strategy for further details.				
	Minimise operational water use and other 'peripheral' materials during construction	A Construction Environmental Management Plan has been developed and outlines measures to minimise waste generation, reuse materials for temporary works, implement a clear labelling system for waste segregation, use just-in-time procurement, store materials correctly on-site, utilise plasterboard recycling services, offer take-back schemes for	High performance heating, cooling and ventilation systems will be used to minimise energy usage.		Not applicable	All sanitary fittings shall be low usage or fitted with flow restrictors to limit the flow.

Commitments		Design Layer				
		Skin / shell	Structure / Frame	Services	Space / interior	Contents
		packaging materials, and engage staff through training				
Preserving and regenerating the natural environment	Use of materials that can be returned to natural nutrient cycles once their function has been fulfilled.	Not applicable however opportunities will continue to be explored and updated in future CES.				
	Use of carbon-absorbing materials	Not applicable however opportunities will continue to be explored and updated in future CES.				

6 SOURCING AND SPECIFICATION

6.1 OVERVIEW

- 6.1.1. This section outlines the key materials to be used in the Proposed Development with specific considerations as to how resource efficiency and circular economy principles have been considered to date. It also details how these measures have been incorporated into the project specification and applied to the development.
- 6.1.2. As outlined in Figure 5-1, Landsec have a range of existing commitments regarding sourcing. These include:
- 100% compliance with Landsec prohibited materials brief unless specifically agreed otherwise;
 - 100% of core construction materials are responsibly sourced;
 - Source materials with Environmental Product Declarations (EPD) wherever possible;
 - Achieving FSC Project Certification for all schemes other than those using structural timber; and
 - Source all core construction materials from UK and Europe
- 6.1.3. Future CES will provide updates to the range of commitments to be adopted to ensure sustainable and responsible sourcing of materials. A bill of materials will also be produced in later CES.

6.2 MATERIAL SELECTION

- 6.2.1. Material efficiency has been a key aspect of the design process, with the goal of reducing material demand and waste throughout the life cycle of the Proposed Development. This has involved exploring measures to optimise material use during design, procurement, construction, maintenance, and end-of-life stages.
- 6.2.2. The design team has considered environmental impact as a key performance indicator when reviewing options, favouring low impact materials that are supported (where available) by Environmental Product Declaration certification. We will continue with this approach into future CES.
- 6.2.3. Ultimately, material efficiency and carbon reduction efforts have reduced the quantities of new materials used in the development and promoted sustainable building practices. Examples are presented below.

CONCRETE & MASONRY

- 6.2.4. Concrete and masonry will be specified to be sourced in accordance with BES 6001 level “Very Good” or equivalent. Contractors are expected to state the “cradle to gate” embodied carbon of all concrete mixes in accordance line with BS EN 1597833.

CEMENT REPLACEMENT

- 6.2.5. Portland cement is a major contributor to global CO₂ emissions. Pulverised Fuel Ash (PFA) and Ground Granulated Blast-furnace Slag (GGBS). PFA and GGBS are by-products of steel manufacturing and power generation that can replace up to 80% of Portland cement content in concrete, reducing its embodied energy and embodied CO₂ by over 40%, fly ash by over 20%, and limestone fines by 15%.

- 6.2.6. GGBS will be considered for a number of concrete elements on the proposed development, subject to availability and suitability. For example, in ground large pours.

MASONRY

- 6.2.7. Masonry will be specified to be sourced in accordance with BES 6001- Framework Standard for Responsible Sourcing - level “good” or equivalent.

AGGREGATES

- 6.2.8. All quarry products will meet the requirements of the BRE BES 6001 framework standard for Responsible Sourcing of Construction Products, or similar. Quarry products supplied will therefore be able to show a clear chain of custody from source to point of use.
- 6.2.9. Recycled and secondary aggregates can be used as a substitute for traditional concrete aggregates obtained through quarrying and marine dredging, reducing the environmental impact of the concrete production process. The use of recycled concrete aggregate, recycled masonry, and industrial by-products such as China Clay Waste can reduce the carbon footprint of concrete. The use of recycled aggregates in concrete will be explored by the design team for designated concrete applications for the binding to pile caps, retaining walls.
- 6.2.10. Where additional opportunities arise to incorporate aggregate into the Proposed Development, efforts will be made to source recycled aggregate where suitable, subject to adherence to the Structural Specification for the Proposed Development.

STEEL

Reinforcing steel

- 6.2.11. Global consumption of steel continues to rise, mainly as a consequence of industrialisation in developing countries. Despite international supply and demand challenges, and rising costs of primary steel, significant movements continue to be made in industry to evidence recycled content in steel. Recent action in the UK has also been taken to evidence the carbon and cost benefits of steel refabrication and reuse.
- 6.2.12. Landsec will ensure that steel reinforcement is purchased through fabricators that adopt responsibly sourcing to BES 6001 through the Eco-Reinforcement sector scheme. Schemes such as Eco-Reinforcement - a third-party certification scheme which assesses and recognises responsibly sourced reinforcing steel products - should be considered.
- 6.2.13. Reinforcing steel will be specified to be sourced in accordance with BES 6001- Framework Standard for Responsible Sourcing - level “good”, or equivalent.
- 6.2.14. Reinforcing steel that is used across this proposed development will contain 90-95% recycled steel material, insofar as possible; any steel sourced from Electric Arc Furnace processes will comprise 100% recycled steel content. The volume and proportion of these elements, as a percentage of all steel used, will be provided in future CES.

Structural steel

- 6.2.15. Structural steel will, where possible, be sourced from either a BES 6001- Framework Standard for Responsible Sourcing - or an EMS certified supplier to a certification standard of “very good” with a minimum content from ResponsibleSteel™ Certified Steel (or equivalent) or Low Embodied Carbon Steel.

6.2.16. Grade S355 steel will generally be adopted in the design and in accordance with the following technical delivery requirements unless otherwise specified:

- BS EN 10 025 Hot rolled products of structural steels - Technical delivery conditions for non-alloy structural steels (Parts 2 to 6)
- BS EN 10210-1 Hot finished structural hollow sections of non-alloy and fine grain steels; and
- BS EN 10219-1 Cold formed welded structural hollow sections of non-alloy and fine grain steels).

6.2.17. Structures will be assembled off-site as far as practicable which will reduce on-site waste generation.

6.2.18. All steel will be supplied from steelmaking sites that meet Conditions 1 and 2 (listed below) and "Minimum Content". These conditions are presented below.

- Condition 1:
 - A site whose corporate owner has made a public commitment to develop and make public both a long-term emissions reduction pathway and a medium-term, quantitative science-based GHG emissions target for the corporation. A science-based target approved by the SBTi (Science Based Targets initiative), or other quantitative, scientifically justified target of comparable ambition, quality and coverage would meet this requirement in full, or a site that is publicly committed to achieving ResponsibleSteel™ certification, or certification to an equivalent international standard.
- Condition 2:
 - A site that discloses the GHG emissions intensity of the crude steel produced at the site (tonnes CO₂e/ tonne crude steel), together with the proportion of scrap iron/steel that is used as an input material for steel production, to allow assessment of performance as specified in the SteelZero definition of 'Low Embodied Carbon Steel' (*see below).
- Minimum Content:
 - From 1st January 2022, a minimum percentage of the steel procured for the project should comply with at least one of the conditions below:
 - Steel produced by a steelmaking site where the site's corporate owner has defined and made public both a long-term emissions reduction pathway and a medium-term, quantitative science-based GHG emissions target for the corporation. A science-based target approved by the SBTi (Science Based Targets initiative), or other quantitative, scientifically justified target of comparable ambition, quality and coverage would meet this interim requirement in full.
 - ResponsibleSteel™ Certified Steel, or steel meeting an equivalent international standard.
 - Low Embodied Carbon Steel. Defined as crude steel with a GHG emissions intensity (tonnes CO₂e/ tonne crude steel) of less than or equal to the values below, depending on the percentage of scrap steel used in its production.
 - For steel procured in 2022: 5%
 - For steel procured in 2023: 10%
 - For steel procured in 2024: 15%

TIMBER

- 6.2.19. Timber to be sourced from legal and sustainable sources as defined by the UK Government Central Point of Expertise on Timber, evidenced through a scheme recognised by CPET, such as the Forest Stewardship Council (FSC), alternatively Cat B where alternative documentary evidence is provided. Documentary evidence (which has been or can be independently verified) regarding the provenance of all timber supplied will be obtained. Suppliers will be asked to evidence that they have adopted - and are implementing - a formal environmental purchasing policy for timber and wood-based products.

PVC

- 6.2.20. Landsec will seek sustainable sources of PVC materials, ensuring that suppliers have phased out, or be working towards and reporting on, the phasing out of heavy metals such as lead, mercury or cadmium whilst ensuring materials are recyclable with all waste produced during the manufacturing process being recycled.
- 6.2.21. All chemicals used in the production of virgin PVC must be registered for use under the regulations with the European Chemical Agency (REACH), and the supplier must operate a take-back scheme that offers a closed-loop recycling system or identifying a mechanical recycling system for installation waste.

7 NEXT STEPS

- 7.1.1. This CES sets out the current targets, principles and design decisions taken to until now to embed circularity across the Proposed Development.
- 7.1.2. This document demonstrates how Landsec have placed significant emphasis on the inclusion of circularity throughout the design, material selection, procurement, construction, operation, maintenance and end of life opportunities, so to utilise resources responsibly and to eradicate wastes.
- 7.1.3. A future Detailed CES will provide principles, targets and design decisions including quantified material estimates, an estimated bill of quantities and an estimated recycling and waste reporting.
- 7.1.4. A further Post Construction CES will report on performance against the targets within the Detailed CES, whilst providing an actual bill of materials and actual recycling and waste reporting.
- 7.1.5. Landsec will continue to work with our discipline leads, contractors and suppliers to explore opportunities that further enhance the sustainability of this transformative development.



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